

April 22, 2009



Mr. Jerry Lein
North Dakota Public Service Commission
600 East Boulevard, Dept. 408
Bismarck, North Dakota 58505

Westwood Professional Services

7699 Anagram Drive
Eden Prairie, MN 55344

MAIN 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150
EMAIL wps@westwoodps.com
www.westwoodps.com

Re: Information Request, Border Winds Wind Energy Project
Case No. PU-08-797
File 20071163

Dear Jerry Lein:

In your initial staff review of Sequoia Energy Inc.'s (Sequoia) application for a Certificate of Site Compatibility for the Border Winds project (Case No. PU-08-797), you indicated that additional information is needed before the application can be deemed complete. On behalf of Sequoia, we have prepared the following in response to questions identified in your February 18, 2009 email. As such, we anticipate that the NDPSC will deem Sequoia's application complete, pending NDPSC's receipt of the final planned location of the collector substation, O&M building and interconnection site (see item 6). If this is the case, then Sequoia is prepared for an November 2009 public hearing date for the Border Winds project.

1. **Table 3-2. Avoidance Areas** – We will remove the reference to unique/rare animal and plant communities from Table 3-2 (Avoidance Areas) and include it only in Table 3-1 (Exclusion Areas). In addition, prairies and CRP lands will be removed from Exhibit 6 (Avoidance Areas) as they do not qualify as 'avoidance areas' under Chapter 69-06-08 and will be presented in a revised Exhibit 15 (USFWS Land Use, CRP Lands, and Prairies).
2. **Minimum Turbine Setbacks** – These are listed in Table 4-1 on page 20 of the application. The application indicated that 460 feet is the proposed (minimum) setback from property boundaries, transmission lines, roads and railroads. This 460-foot distance equals 1.1 x maximum turbine blade tip height. Exhibit 7 of the application shows that the maximum turbine height for the turbine models under consideration equals 127.5 meters (127.5 m = 418.3 ft; $418.3 \times 1.1 = 459.8$ ft). In addition, all turbines will be setback at least one turbine length from the outside project boundary and setback at least a 0.25 miles from WPAs.
3. **Noise/Sound** – The sound attenuation modeling provided in Exhibit 12 of the application was based on previous studies of Siemens 2.3 MW turbines that were conducted in Minnesota and Denmark (studies attached). These studies indicated the sound level produced at the nacelle was 107 to 109 dBA, for the turbine model SWT-23-93. In the Minnesota study (which recorded the lower sound level of 107 dBA at the nacelle), noise levels were shown to reach 50



dBA at a distance of 804 feet from the turbine. The model provided in Exhibit 12 of the application was based on the more conservative sound level of 109 dBA at the nacelle. Based on typical sound attenuation properties, it was predicted that the sound level will fall below 50 dBA at a distance of 1,000 feet. The setback distance listed in Table 4-1 of the application (1,000 feet from occupied residences) was to allow for flexibility in turbine layout should it be necessary. As described in item 4 below, Sequoia has maintained a setback of 1,600 feet from most occupied residences. Based on the modeling previously described, this minimum setback should comply with generally accepted average noise impact levels for wind turbines and will be less than 50 dBA.

4. **Occupied Residence Setback** – Sequoia used 500 meters (1,640 feet) as the setback from occupied residences when planning the initial turbine layout. After subsequent layout revisions, 63 out of the total 66 proposed turbines remain at least 1,600 feet from occupied residences. The three turbines that are less than 1,600 feet from building sites are C1, K1, and M1 (measured from 1,515 feet, 1,040 feet, and 690 feet, respectively). The building site nearest to M1 is a storage facility associated with the adjacent farm. Because it is not considered a residence, the 1,600 foot setback was not applied to this structure. Turbine K1 has been moved north and is now located 1,600 feet from the nearest occupied residence (it should be noted that the revised location for K1 has necessitated realigning K2 and K3 to the north as well. However, this realignment has not resulted in additional turbines closer than 1,600 feet from residences). Turbine C1 occurs near the project boundary north of St. John. While there is an occupied residence within 1,600 feet of turbine C1, it is well outside the setback identified for noise, as described in item 3 above, and the PSC's requested minimum setback of 1,400 feet. No revisions to the location of C1 has occurred.
5. **County Ordinances** – Copies of the Rolla Municipal Airport Zoning Ordinance, the Rolette County Zoning Resolution, and the Towner County Zoning Regulations are attached as requested.
6. **Substation, O&M Facility, and Transmission Interconnection** – Sequoia is still in the process of finalizing the locations of the collector substation, O&M building, turbines, and plans for the transmission line grid interconnection. In an effort to maximize efficiency, only the finalized site plan will be provided to the NDPSC as opposed to iterative locations of project facilities. NDPSC has requested this information be supplied at least one week prior to the public hearing to allow for sufficient review. This information will be provided in at least this amount of time and in doing so, it is our understanding that the application will be deemed complete by NDPSC.
7. **Schedule for Cultural/Natural Resource Field Studies** – It is our understanding that the field studies do not need to be completed prior to the



acceptance of the application and scheduling of the NDPSC hearing. As such, some of the field studies are in the process of being conducted and some are proposed to occur at more appropriate times of the year (i.e., growing season for the prairie inventory and wetlands delineation, etc.).

- a. Wetland Delineation – The areas proposed for disturbance by turbines and other project facilities will be delineated for wetlands. This study can be conducted after the site plan is finalized and the growing season is initiated.
- b. Woodland and Prairie Inventory – This will be conducted during the growing season along with the wetland delineation.
- c. Pre-Construction Avian Survey – A 10-week study will be conducted during spring migration. The spring migration period typically starts in late March and extends through May. Recent flooding and blizzards have delayed initiation of the avian survey. However, since roads across the Red River Valley and other parts of North Dakota have recently become clear of flood waters and snow, Westwood has initiated this field study. The first week of collecting data on spring migration began April 1, 2009. For a 10-week study, data on spring migration use of avian species within the project will be conducted through the first week of June.
- d. Class III Archaeological Investigation – This was recommended based on the results of the Class I Investigation, and the NDSHPO agreed with the recommendation. Optimum conditions for conducting this survey occurs after soils thaw and prior to mid-June. These conditions allow for greater soil surface visibility and data recovery.

8. **Other** –

- a. Sequoia is working with the U.S. Fish and Wildlife Service to avoid regulated wetlands on U.S. Fish and Wildlife wetland easements within the project boundaries. This language will be explicitly stated within the application text.
- b. The North Dakota Game and Fish Department manages the WRAs (see p. 63 of the application).
- c. The Turtle Mountains are the area to the west of the project and show up as green on the exhibits, such as Exhibit 3 (Project Location and Preliminary Site Layout (aerial)).

April 22, 2009
Page 4



We appreciate your careful review of the initial application. Should there be further questions or if you require additional assistance, please do not hesitate to contact me.

Please contact me at 952-906-7423 or amy.linnerooth@westwoodps.com if you have any questions.

Sincerely,

WESTWOOD PROFESSIONAL SERVICES

A handwritten signature in black ink that reads 'Amy Linnerooth'. The signature is written in a cursive, flowing style.

Amy Linnerooth
Environmental Scientist

ROLETTE COUNTY ZONING RESOLUTION

A Resolution providing for the zoning of the unincorporated areas of Rolette County, a Municipal Corporation of the State of North Dakota in accordance with the Provisions of Chapter 11-33, Century Code, empowering the Board of County Commissioners to establish Zoning Districts, and provide for County Zoning, by regulating the location, size, height and use of buildings and structures, the area and dimensions of lots and yards, and the use of lands and for the purposes dividing the unincorporated area of Rolette County, North Dakota into zones or districts of such number, sizes and shapes as are deemed best suited to carry out said purposes, providing a method of administration, and prescribing penalties and proceedings for the administration and enforcement of this Resolution.

Whereas, the Board of County Commissioners of Rolette County deems it in the interest of the public health, safety, morals, comfort, and general welfare of said county and its residents to establish a general plan of zoning for the unincorporated areas of said Rolette County.

Now, therefore, be it resolved, by the Board of County Commissioners of Rolette County, North Dakota:

SECTION 1. REPEAL

All other zoning regulations and amendments thereto adopted under the authority of Chapter 11-33 of the North Dakota Century Code are hereby repealed.

SECTION 2. PURPOSE

For the purpose of promoting public health, safety, morals, comfort and general welfare; to conserve and protect property and property values; to secure the most appropriate use of land; and to facilitate adequate but economical provision of public improvements, all in accordance with a comprehensive plan, the Board of County Commissioners of Rolette County, finds it necessary and advisable to regulate the location, height, bulk, number of stories and size of buildings and other structures, including tents, cabins, and trailer coaches, percentages of lot areas which may be occupied, set-back building lines, sizes of yards, courts and other open spaces, the density of population, the uses of buildings and other structures including tents, cabins and trailer coaches and the uses of land for trade, industry, residence, recreation or other purposes and for such purposes divides the unincorporated area of the county into districts or zones.

SECTION 3. DISTRICTS

For the purpose of carrying out the provisions of this Resolution, the unincorporated areas of the County is hereby divided into the following zones:

1. Zone #1 comprising the unorganized townships of Willow Lake, Holmes, Gilbert, Hillside, Currie and excluding all property owned and used by the International Peace Gardens.
2. Zone #2 comprising the unorganized townships of Hutchinson, Baxter and Fairview.
3. Zone #3 comprising the unorganized townships of Mt. Pleasant, Oxford, Union, Ellsworth, Island Lake and Pleasant Valley.
4. Zone #4 comprising the unorganized township of Russell and the organized townships of Shell Valley and Maryville.
5. Zone #5 comprising the unorganized townships of Wolf Creek, Finnegan, Rice, Leonard and the organized townships of Kohlmeier and South Valley.

That each of the said Zoning Districts shall be divided into the following districts:

1. Agricultural Land.
2. Residential, which shall be designated as "R" Districts.
3. Business and Commercial, which shall be designated as "B" Districts.
4. No Alcoholic Beverages, which shall be designated as "NAB" Districts. Only Willow Lake and Holmes Townships shall have this designation.
5. Industrial, which shall be designated as "I" Districts.

SECTION 4. ZONING MAP

The location and boundaries of the zoning districts are hereby established as shown on the maps attached and made a part of the Resolution. The maps shall be kept on file with the County Auditor and shall be regularly updated to show any change in the zoning boundary lines resulting from conditional permits.

SECTION 5. AGRICULTURAL

Land in any district may be used for agricultural purposes. No zoning certificate shall be required for the construction of buildings or improvements incident to the use for agricultural purposes of the land on which such buildings shall be located. For the purpose of this Resolution, "agriculture" shall include agriculture, farming, dairying, pasturage, horticulture, and animal and poultry husbandry. No regulation or restriction shall prohibit or prevent the use of the land or buildings for farming or any of the normal incidents of farming. Minimum requirements for an agriculture classification shall be 10 acres of land, with the owner making at least 50% of his income from agriculture.

SECTION 6. CLASSIFICATION OF USES

For the purposes of this Resolution, the various uses of buildings and premises shall be classified as follows:

"R" Districts (Residential)

The following uses and no other shall be deemed Class "R" uses and permitted in all "R" Districts:

1. Single or two-family dwellings including mobile homes or modular homes and buildings accessories thereto, but excluding tents, campers and motor homes, except that not more than one motor home may be temporarily used as a residence on a lot while a dwelling is being constructed thereon, but such excluded use shall not be continued for more than one (1) year.

2. Tourist homes.

3. Church, school, fire station, publicly-owned playground.

4. Any person may maintain an office or may carry on a customary home occupation in the dwelling house used by him as his private residence providing such use does not involve any extension or modification of said dwelling which will alter its outward appearance as a dwelling and providing such use does not involve any outward evidence of such use other than a sign as authorized in other sections of this resolution.

5. Hospital or rest home for other than insane or mental cases.

The above uses shall be permitted only provided such use is not noxious, dangerous or offensive.

"B" District (Business)

The following uses and no other shall be deemed Class "B" uses and permitted in all "B" districts:

1. Any use permitted in an "R" district shall be permitted in a "B" district.

2. Apartment house, rooming house, hotel, living quarters over business establishments, restaurant, lunchroom, garage.

3. Retail store or shop, repair shop, beauty parlor, funeral home, mercantile establishment, bank, office or office building, studio.

4. Lodge or Community Hall

5. Gasoline filling and service stations complying with state regulations.

6. Indoor theater, bowling alley, dance hall, skating rink.

7. Job printing, newspaper printing plant.

8. Builder's supply, ice storage and sales, plumbing and heating supply.

9. Dairy, locker plants.

The above uses shall be permitted only providing such use is not noxious, dangerous or offensive by reason of emission of odor, dust, smoke, gas, noise, fumes, flame or vibration.

"I" District (Industrial District)

1. Any use permitted in a "B" District shall be permitted in a "I" District.

2. This district is intended to provide areas for industrial development and those lands uses which are generally not compatible with agriculture, commercial, or residential land uses.

3. For all "I" Districts a Conditional Use Permit must be approved before

areas can be designated as an "I" District.

SECTION 7. CONDITIONAL USES

The following uses shall be considered conditional uses and shall be permitted only after a conditional use permit has been obtained in accordance with these zoning regulations.

1. Schools, hospitals and sanitariums.
2. Multiple family dwellings.
3. Airports.
4. Livestock sales rings.
5. Commercial feedlots.
6. Stockyard or slaughter of animals.
7. Rock crushers, concrete and asphalt mixing plants, sand and gravel pits, or any such excavation or surface mining.
8. Amusement parks, commercial baseball or athletic fields.
9. Race tracks or fairgrounds.
10. Open air theaters.
11. Commercial radio and television towers exceeding fifty feet in height.
12. Storage of explosives or blasting agents.
13. Wastewater treatment plant.
14. Refuse disposal areas conducted under a landfill or sanitary landfill method.
15. Commercial grain elevators.
16. Cemetery.
17. Animal hospital or kennel.
18. Wrecking, salvage or junk yard.
19. Fish hatcheries, beekeeping, fur farms, and dog kennels.

SECTION 8. PROHIBITED USES

Any land uses which are not listed in any section as a permitted use or as a conditional use shall be considered a prohibited use and may not be allowed.

SECTION 9. NON-CONFORMING USES

a. A non-conforming use existing at the time this resolution takes effect may be continued, except that if it is voluntarily discontinued for two (2) years or more, it shall then be deemed abandoned and any further use must be in conformity with the uses permitted in such district.

b. Any building arranged, intended or designed for a non-conforming use, the construction of which has been started at the time of the passage of this resolution, but not completed, may be completed and put to such non-conforming use, providing it is done within one (1) year after this resolution takes effect.

c. Any building or structure, existing as a non-conforming use at the time this resolution takes effect, which is destroyed by fire or the elements, may be reconstructed and restored providing the same is done within two (2) years from the date of said destruction.

SECTION 9. LAKESHORE AREAS

1. In all Zones, no new platting or subdividing of land shall be permitted in shore land areas unless the minimum size of building lot, which shall not be further subdivided for building purposes, is at least 150 feet wide running along the lake shore and a minimum of 20,000 square feet in area; shore land areas shall include all lands within 1,000 feet from the lake and 300 feet from permanent streams.

2. No two family or multiple dwelling shall be erected or building altered to accommodate more than one family as a residence on any one lot or portion thereof.

3. The aforesaid minimum size of building lot shall not apply to lots within existing subdivision plats which have not been vacated, but in those subdivision plats the minimum size of building lots shall be a lot as now platted.

4. Set back from the water in shore land areas for all buildings and structures, except piers, hoists, unenclosed decks and outbuildings not exceeding 600 square feet, shall be not less than 50 feet from the normal high water line. If the contour of the land is such, this minimum need not be followed, the owner must

seek the approval of the ~~Zoning Board~~ for a variance.

5. In a Zone comprised of all land within 1000 feet of lake shore, or within 1000 feet of then existing lake water, a building permit or Zoning Certificate for dwelling purposes or to construct a new sewer system shall not be issued unless it provides for a waste water system designed and to be operated so as not to allow effluent to reach the lake, but a waste water drain constructed more than 100 feet from lake water and constructed according to Farmers Home Administration, Environmental Protection Agency and State Health Department standards or better shall be deemed to comply herewith; and that beyond said 100 foot zone from lake water, no permit or Zoning Certificate shall be issued for dwelling purposes unless it provides for a waste water system constructed according to Farmers Home Administration, Environmental Protection Agency and State Health Department standards or better; provided, however, that holding tanks designed and operated so as not allow effluent to reach lake water may be used without restriction; and that approval of a sewage treatment plan shall be at the sole and absolute discretion of the Rolette County Zoning Board for any new development.

6. Removal of trees from the shore land areas shall in so far as practicable protect the scenic beauty, control erosion, and keep to a minimum effluent and nutrient flow from the shore land. In the event a disease necessitated removal of all trees from a given area, new planting should begin immediately.

SECTION 11. OUTDOOR ADVERTISING

1. Signs not larger than three square feet in area are permitted in any district when the use of the sign is in direct relation to the use of the premises.

2. An outdoor advertising sign or billboard, other than those mentioned in paragraph 1 of this section, shall be deemed a structure and shall require a zoning certificate before being erected, constructed or replaced.

3. No outdoor advertising sign, except those mentioned in paragraph 1 of this section, shall be placed nearer any street or road than the minimum set-back building line.

4. No outdoor advertising sign more than three square feet in size shall be located within one hundred fifty (150) feet of any intersection unless affixed to a building and not extending beyond or above the same more than three feet.

5. Any illuminated sign shall be so shaded as not to interfere with the vision of persons on the highway or to annoy neighbors.

SECTION 12. MINIMUM TRACT AREA PER FAMILY

1. No single family dwelling shall be erected or moved on a tract of less than 130,000 square feet, and no sub-dividing of this tract.

2. No two-family dwelling shall be erected or moved on a tract of less than 200,000 square feet, and no sub-dividing of this tract

3. No multiple dwellings.

SECTION 13. MINIMUM LOT WIDTH

No dwelling shall be erected in any district on a lot having a frontage of less than fifty (50) feet on a public thoroughfare unless such lot was designated on a recorded plat or separately owned at the time this resolution took effect and cannot be practicably be enlarged to comply with this regulation.

SECTION 14. SET-BACK BUILDING LINES

No building or structure or any portion thereof, except steps and uncovered porches less than ten (10) feet in width, shall be erected within seventy (70) feet of the right-of-way side line of any road or street. If there is not established right-of-way line for any road or street, said side line shall be deemed to be one hundred (100) feet from the center of the road.

SECTION 15. SIDE YARDS

For every building erected in an "R" District and for every dwelling erected in any district, there shall be a minimum side lot clearance on each side of said building of not less than ten (10) feet, which space shall remain open and unoccupied by any building or structure. Attached garages or accessory buildings connected with the main building by a breeze way or other permanently constructed connections shall be construed to be a part of the main building for the purposes of

this section. All other accessory buildings shall be at least twenty (20) feet from any dwelling.

Provided, however, that an accessory building located not less than twenty (20) feet to the rear of the main buildings may be erected not less than five (5) feet from a side lot line except on a corner lot, provided that it will be not less than twenty (20) feet distant from any existing residence. An accessory building is a subordinate building customarily incident to and located on the same lot with the main building.

SECTION 16. CORNER LOTS

The set-back building line on a corner lot shall be in accordance with the provisions governing the road or street on which the building faces. If possible, the side yard clearance on the side street should conform to the set-back line for an inside lot on said road or street.

SECTION 17. REAR HOUSES

No dwelling or apartment house shall be erected or altered or used unless the same shall have access to a public street, and, if located in the rear of another building and has not immediate street frontage, then a permanent easement for access shall be provided over an unoccupied strip of land at least twenty (20) feet in width and such reserved strip may not form a part of any lot width or lot yard or lot area required by this resolution.

SECTION 18. MAXIMUM HEIGHT OF BUILDINGS

No building shall be erected in any district to a height in excess of two and one-half (2 1/2) stories or in excess of thirty-five (35) feet, measured from the natural grade at the building line to the highest point on the roof, except that these provisions shall not apply to the height of a church spire, belfry, clock tower, wireless tower, chimney, water tank, elevator bulkhead, or other mechanical appurtenances when erected upon and as an integral part of such building.

SECTION 19. MINIMUM SIZE OF DWELLINGS

Every dwelling or residence shall have a first-floor space designated and used for living quarters of not less than six hundred (600) square foot per family unit exclusive of basements, utility rooms, porches, garages, breeze ways, terraces, attics or partial stories.

SECTION 20. PARKING FACILITIES

1. All dwellings and apartment houses shall provide parking space off the road or street and outside of the public right-of-way, together with means of ingress and egress thereto, for not less than one motor vehicle per dwelling unit or apartment. Not less than two hundred (200) square feet of area shall be deemed necessary for each such vehicle.

2. All Class "B" and "I" uses shall provide parking space off the road or street outside of the public right-of-way and not more than three hundred (300) feet distant from an entrance to said establishment of an area of not less than two hundred (200) square feet for each one hundred (100) square feet of area of the first floor of said establishment which it serves.

3. All Class "B" and "I" uses shall provide adequate parking space off the road or street.

SECTION 21. ZONING CERTIFICATE

The position of Zoning Inspector is hereby created for each of the zones established by this resolution to be appointed by the Rolette County Planning Commission. He/she shall keep in each zone a record of all applications for Zoning Certificates and the action taken thereon.

Before constructing, changing the use of, or altering any building, including accessory buildings, or changing the use of any premises, application shall be made to the Zoning Inspector for a Zoning Certificate. The application shall indicate the exact location of the proposed construction, alteration or change of use and shall include a plot plan, showing the proposed location and dimensions, height of the building and the proposed use. Within ten (10) days after receipt of the application, the Zoning Inspector shall issue a Zoning Certificate if the

application complies with the requirements of this resolution and the application is accompanied by the proper fee.

Each Zoning Inspector shall be paid a fee up to and not exceeding twenty-five Dollars (\$25.00) for issuing a Zoning Certificate. A fee of \$50.00 shall be paid by the applicant upon filing an application for amendment, conditional use permit, variance permit or any other activity which requires an advertised public hearing.

Applications must be made and Zoning Certificates obtained, for all excavations for dirt, sand and gravel. The certificate must provide that all pits created from such excavation must be filled within six (6) months after such removals, except in the case of established gravel pits, which must be filled before being abandoned.

SECTION 22. CONDITIONAL USE PERMITS

1. Requirements for Conditional Uses: A Conditional Use Permit may be granted following compliance with procedure set forth in this section if the conditional use is one set forth in the District Regulations, provided that no application for a conditional use shall be granted unless all of the following conditions are found to be present:

- A. The conditional use will not be detrimental to or endanger the public health, safety or general welfare;
- B. The existing permitted uses in the area will not be substantially impaired or diminished by the establishment of the conditional use;
- C. The conditional use will not impede the normal and orderly development of the surrounding property for uses permitted in the district;
- D. Adequate utilities, access roads, drainage, and other necessary site improvements have been or are being provided;
- E. Adequate measures have or will be taken to provide access and exit so designed as to minimize traffic congestion in the public roads and streets; and
- F. The conditional use shall conform to all provisions of the district in which it is located.

The Conditional Use Permit may be issued for a specified period of time with automatic cancellation at the end of that time unless it is renewed, or conditions may be applied to the issuance of the Permit and periodic review may be required to determine if the conditional use has any detrimental effects on neighboring uses or districts. The Permit shall be granted for a particular use and not for a particular person or firm.

2. Applications: Application for a Conditional Use Permit shall be submitted by the property owner to the Planning Commission on forms provided by the Commission. The application shall include

- A. The name and address of the applicant.
- B. The date of the application.
- C. A description of the site and the immediate surrounding area.
- D. A preliminary map showing boundary lines and location of structures to be developed on the site.
- E. Location of existing structures on adjacent property.
- F. Parking plan showing off street parking areas and/or loading areas.
- G. Names and addresses of adjacent property owners.
- H. Any reasonable information the Planning Commission deems necessary.
- I. Payment of the required filing fee.

3. Planning Commission Recommendation: The Planning Commission, upon receipt of an application for a Conditional Use Permit, shall at its next regular meeting, specify a time and date within the next thirty days for a public hearing for the proposed conditional use. Following the public hearing, the Planning Commission shall consider the application and make a recommendation to the County Commission within thirty days.

4. Public Hearing and Notice: The Planning Commission shall publish a notice of the public hearing in the official county newspaper at least ten days before the hearing. Notice shall include the date, time, place and purpose

of the hearing. In addition to the published notice, the Planning Commission may require that notice be mailed to those persons designated by the Planning Commission.

5. County Commission: Upon receipt of the Planning Commission's recommendations, or if the Planning Commission has not acted within the required time limits of this Article, the County Commission shall hold a public hearing on the proposed conditional use. Following the public hearing, the County Commission may either grant the proposed conditional use, grant the proposed conditional use with additional conditions, or deny the proposed conditional use.

SECTION 23. VARIANCE PERMITS

1. Definition: To permit a variation in the yard, setback and height requirements of any district where there are practical difficulties or unnecessary hardships in the carrying out of these provisions due to an irregular shape of the lot, or topographical or other conditions, provided such variation will not seriously affect any adjoining property or the general welfare, or where variations may be permitted which allow unusual arrangement on the lot and still clearly and unmistakably accomplish the intent of these regulations. The Board must find that the granting of such variance will not merely serve as a convenience to the applicant, but will alleviate some demonstrable or unusual hardship or difficulty.

The Variance Permit may be issued for specified period of time with automatic cancellation at the end of that time unless it is renewed, or conditions may be applied to the issuance of the Permit and periodic review may be required to determine if the variance has any detrimental effects on neighboring uses or districts. The Permit shall be granted for a particular use and not for a particular person or firm.

1. APPLICATIONS: Application for a Variance Permit shall be submitted by the property owner to the Planning Commission on forms provided by the Commission. The application shall include:

- A. The name and address of the applicant.
- B. The date of the application.
- C. A description of the site and the immediate surrounding area.
- D. A preliminary map showing boundary lines and location of structures to be developed on the site.
- E. Location of the existing structures on adjacent property.
- F. Parking plan showing off street parking areas and/or loading areas.
- G. Names and addresses of adjacent property owners.
- H. Any reasonable information the Planning Commission deems necessary.

I. Payment of the required filing fee.

2. PLANNING COMMISSION RECOMMENDATION: The Planning Commission, upon receipt of an application for a Variance Permit, shall at its next regular or special meeting, specify a time and date within the next thirty days for a public hearing for the proposed variance. Following the public hearing, the Planning

Commission shall consider the application and make a recommendation to the County Commission within thirty days.

3. PUBLIC HEARING AND NOTICE: The Planning Commission shall publish a notice of the public hearing in the official county newspaper at least ten days before the hearing. Notice shall include the date, time, place, and purpose of the hearing. In addition to the published notice, the Planning Commission may require that notice be mailed to those persons designated by the Planning Commission.

4. COUNTY COMMISSION: Upon receipt of the Planning Commission's recommendations, or if the Planning Commission has not acted within the required time limits of this Article, the County Commission shall hold a public hearing on the proposed variance. Following the public hearing, the County Commission may either grant the variance permit, grant the variance permit with additional conditions, or deny the variance permit.

SECTION 24. AMENDMENTS

Revised Zoning Resolution.txt

The County Planning Commission may initiate amendments to this resolution from time to time and hold public hearings thereon before submitting any proposed amendment to the Board of County Commissioners, notice to be given as provided by statute.

SECTION 25. CERTIFICATE OF COMPLIANCE

1. A certificate of compliance is required before any structure, building or land can be occupied which has been built or structurally altered such that it requires a building permit.
2. The certificate of compliance process is outlined below:
 - A. Upon notification of completion of any work requiring a building permit, the Planning Commission conducts an on-site inspection of the work specified on the building permit.
 - B. If the completed work is found to be in accordance with the zoning ordinance, the Planning Commission will issue a certificate of compliance.
 - C. Reasons for refusing to issue a certificate of compliance must be stated by the Planning Commission in writing within fifteen days after the request of the applicant for the certificate. Notice of such refusal shall be sent in writing to the applicant within one week after such refusal is made.

SECTION 26. BOARD OF ZONING APPEALS

There is hereby created a District Board of Appeals to consist of three (3) members, namely: The County Commissioner of the District in which the Zone is located, the Mayor of the Incorporated Municipality in the District, and a resident of the unincorporated area involved appointed by the Chairman of the Board of County Commissioners.

The members of the Board of Zoning Appeals shall serve without compensation, and shall have the following powers:

1. To hear and decide appeals where it is alleged there is error in any order, requirements, decision or determination made by an administrative official in the enforcement of the Zoning Laws or of this Resolution or any amendments thereto.
 2. To authorize, upon appeal, in specific cases, such variance from the terms of this Zoning Resolution as will not be contrary to the public interest, where owing to specific conditions a literal enforcement of the provisions of the resolution or any amendments thereto will result in unnecessary hardship, and so that the spirit of the resolution shall be observed and substantial justice done.
- In exercising the above-mentioned powers, such board may, in conformity with the provisions of law and this resolution and amendments thereto, reverse or affirm, wholly or partly, or may modify the order, requirement, decision or determination appealed from, and may make such order, requirement, decision or determination as ought to be made, and to that end shall have all powers of the officer from whom the appeal is taken.

Appeals to the Board of Zoning Appeals may be taken by any person aggrieved or by an officer of the municipality affected by any decision of the administrative officer. Such appeal shall be taken within twenty (20) days after the decision by filing with the officer from whom the appeal is taken and with the Board of Zoning Appeals a notice of appeal specifying the ground thereof. The officer from whom the appeal is taken shall forthwith transmit to the Board of Zoning Appeals all the papers constituting the record upon which the action appealed from was taken.

The Board of Zoning Appeals shall fix a reasonable time for the hearing of the appeal, give ten (10) days notice to the parties in interest, and decide the same within thirty (30) days after it is submitted. Upon the hearing, any party may appear in person or by an attorney. Any person adversely affected by a decision of a Board of Zoning Appeals may appeal to the District Court of this county on the ground that such decision was unreasonable or unlawful, as provided in Chapter 11-11.

SECTION 27. ENFORCEMENT

- A. It shall be unlawful to construct, reconstruct, enlarge, change, maintain

or use any building or to use any land in violation of any regulation or any provision of this resolution or any amendment thereto. Any person, firm or corporation violating this resolution or any regulation, provision or amendment thereto shall be deemed guilty of a misdemeanor and upon conviction thereof shall be fined not more than One Hundred Dollars(\$100.00). Each and every day during which such illegal erection, construction, reconstruction, enlargement, change, maintenance or use continues may be deemed a separate offense.

B. In case any building is or is proposed to be located, erected, constructed, reconstructed, enlarged, changed, maintained or used or any land is or is proposed to be used in violation of law or of this resolution or any amendment thereto, the Board of County Commissioners, the prosecuting attorney of the county, the Zoning Inspector or any adjacent or neighboring property owner who would be especially damaged by such violation, in addition to other remedies provided by law, any institute, injunction, mandamus, abatement, or any other appropriate action, actions, proceeding or preceding to prevent, enjoin, abate or remove such unlawful location, erection, construction, reconstruction, enlargement, change, maintenance or use.

SECTION 28. VALIDITY

Each section, subsection, provision, requirement, regulation or restriction established by this resolution or any amendment thereto, is hereby declared to be independent, and the holding of any part to be unconstitutional, invalid or ineffective for any cause shall not affect nor render invalid the resolution or amendments thereto as a whole or any other part thereof except the particular part so declared to be invalid.

I, Valerie J. McCloud, County Auditor of Rolette County, do hereby certify that the above is a true and correct copy of the Rolette County Zoning Resolution.

Dated this 27th day of December, 2001.

Rolette County Auditor

STATE OF NORTH DAKOTA))
COUNTY OF ROLETTE))SS

On this 27th day of December, 2001, personally appeared before me, Mary Richard, a Notary Public, within the aforesaid County and State, Valerie J. McCloud to me personally known as the County Auditor, respectively of the said County and acknowledged to me that she executed the above for and on behalf of said County.

Notary Public for Rolette County,
North Dakota

My commission expires _____

Rolette County Zoning Request Application

Date _____

Applicant Name _____

Phone _____

Address _____

Type of Request _____ Building Permit _____ Amendment
 _____ Permitted Use _____ Text
 _____ Conditional Use _____ Map
 _____ Variance

Description of Request _____

Reason for Request _____

Existing Use of Property _____

Lot Size _____ Setbacks _____

Lot Width _____ Sideyard _____

A Sketch showing all proposed structures and their location on the lot must be attached.

Signature of Applicant _____ Date _____

Action Taken _____

Signature for the County _____ Date _____

Noise Optimization of a Siemens Multi-MegaWatt Turbine

Søren Hjort

Siemens Wind Power A/S, Borupvej 16, 7330 Brande, Denmark

E-mail: shj@siemens.com, Telephone: (00 45) 99422633

Abstract. A method has been developed for the noise optimization of a wind turbine. The main purpose of the method is to identify the most efficient way to reduce the aero-acoustic noise emission from the wind turbine. The secondary purpose is to evaluate the applicability of an engineering code for aero-acoustic noise prediction.

High-quality recordings of the total sound pressure from a Siemens SWT-2.3-93 were carried out over a two-day period, operating the turbine in fixed pattern of systematic changes of rotor speed and pitch angle. The acoustic data were synchronized with the data logging from the turbine control system. As a result thousands of 10s 1/12-octave spectra were recorded and were entered into a database holding blade pitch, rotor speed, nacelle wind, power production and sound power as associated entries.

The database facilitates selection of the optimum modes of operation providing maximum power output when noise control is required.

Furthermore, the database enables verification of a new aero-acoustic code based on models by Amiet (turbulent inflow noise), Brooks, Pope and Marcolini (boundary layer noise, blunt edge noise) and Moriarty. Comparison includes the sound power scalars and the 1/12-octave spectra.

The results indicate that some noise sources are well predicted by the code, others are not. The turbulent boundary layer sources seem well estimated within a few dB. The separated boundary layer source is at least qualitatively well predicted also, while the blunt trailing edge noise is severely over-predicted. Recognizing that the turbulent boundary layer sources dominate in non-stalled operating conditions, it seems likely that the engineering aero-acoustic code can assist in future design of low-noise airfoils.

1. Introduction

The importance of wind power is set to increase rapidly over the coming years. As a result more people will receive acoustic impact from wind turbines, so noise concerns are likely to grow. At the same time there are operational benefits associated with an increased blade tip-speed which is known to increase noise. Consequently, there is clear motivation for optimizing the turbine acoustically.

This can be done in two ways:

- Measurement of the sound emission and operational data (wind, pitch, rotor speed, power, etc) for all operating conditions. Then minimize the (lost power)/(reduced noise) ratio by tuning the rotor speed and pitch curves.
- Modeling of the sound emission and operational data, then minimize the (lost power)/(reduced noise) ratio.

Performing the optimization from measured data is the real thing, but as a designer you are always one iteration behind: You cannot optimize before the blade exists physically, and once it does it is not easy to iterate further on the blade layout (chord-, thickness-, twist- and airfoil-distributions). The model operates on an imaginary blade which can be iterated much easier in any respect. However, validation of such model will be crucial.

Trying to benefit both from real measurements and from the acoustic model we follow the standard procedure: First, obtain a reference by measuring the physics. Then, investigate if measured physics compare well with the model and, if possible, tune the model parameters to improve the fit.

The details of the acoustic measurements are explained in Section 2. The acoustic model is briefly presented in Section 3 followed by the measurement-model comparison. Section 4 explores the possibilities for reduced noise power production. Conclusions and outlooks finalize the paper in Section 5.

2. Aero-acoustic noise measurements of an SWT-2.3-93

The Siemens SWT-2.3-93 is a typical modern multi-megawatt wind turbine. Rated power is 2.3MW, and the rotor has three 45m blades with a rotor diameter of 93m. The turbine operates with variable speed up to 16rpm and has pitch control. The test turbine has 80m hub height and is located at Høvsøre National Test Site for large prototype turbines at the west coast of Jutland. The Test Site has five turbines sited in a south-north oriented row, see Fig. 1.



Figure 1: Aerial view from north of Høvsøre Test Site. The SWT-2.3-93 is fifth in the row (right)

The measurement campaign took place during two consecutive days in May 2006. The days were sunny, with moderate temperatures of 10-15 degrees Celsius and wind from a constant westerly direction. Wind speeds varied between 4m/s and 13m/s.

During the measurement campaign the normal control system was overridden so rotor speed and blade pitch curves could be controlled manually and varied systematically independently of each other. In total 11 hours of measurements were obtained, including operational turbine conditions and idling conditions in between when the background noise was recorded.

Overall the measuring conditions were fine. High-pitched bird noise contaminated at times, and beyond a certain wind speed the breaking of the waves on the North Sea shore more than 1km away would cause a sudden rise in the background noise level, but both influences could be accounted for in the post processing.

The acoustic noise recording hardware and processing software was manufactured by Brüel & Kjær [1]. The single microphone measuring location was in the centre of a 1m diameter circular board laid flat on ground 100m downwind of the tower base. The turbine operational data (wind, pitch, rotor speed, power, yaw angle, etc) was taken from the turbine control system and plugged into the Brüel & Kjær hardware, synchronizing noise recordings with turbine data. At post-processing the soundtrack was binned into 10s averages and split into 1/12 octave frequency spectra.

The binned sound pressure levels were then adjusted for the flat plate reflection (6dB offset, [2]), A-weighted and converted to sound power levels for the turbine using the normal assumption that turbine noise can be considered as emitting from a point source at the rotor centre.

Results are shown in Figure 2.

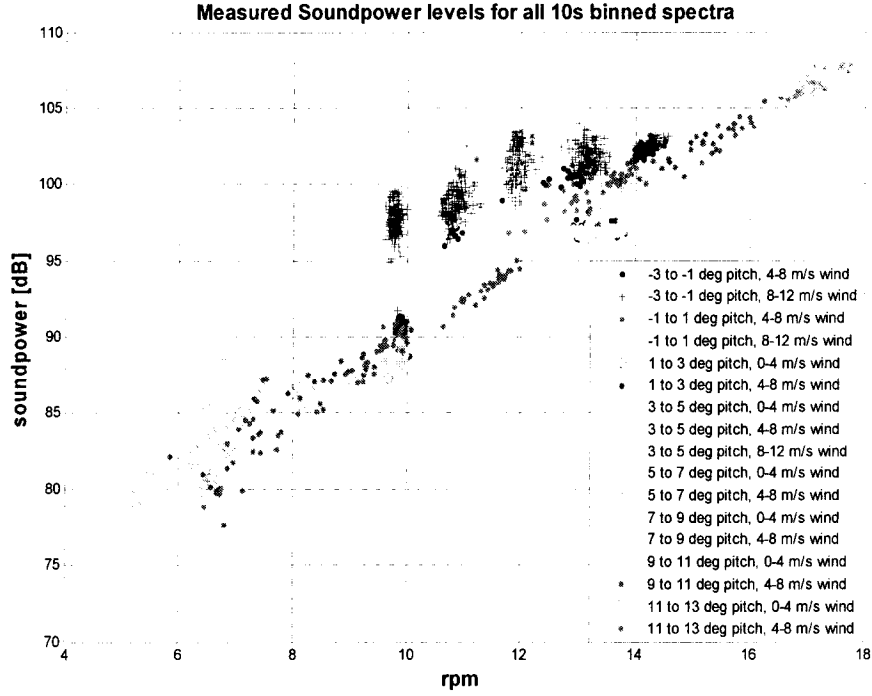


Figure 2: Measured sound power level plots [dB(a)] for the Høvsøre SWT-2.3-93

Inspection of Figure 2 gives the immediate impression of points on a straight line and then occasional off-line points. The black and magenta off-line points are for negative blade pitch, so they are related to stalled conditions. Operating blade-pitch is in the range -1 to 1 degrees (magenta points), which is where the flow around the blade starts to exhibit light stall behavior. Below 8 rpm the signal-to-noise ratio of the measurements deteriorated, causing increased scatter in the sound power levels.

For non-stalled operating conditions (positive blade pitch) the A-weighted sound power level for the SWT-2.3-93 can be expressed as a simple function of V_{tip} , the tip-speed

$$SP(a) = 65.25\text{dB} + 0.498 \frac{\text{dB}\cdot\text{s}}{\text{m}} \cdot V_{tip} \quad (1)$$

Consequently, for non-stalled conditions the sound power is largely independent of both blade pitch and wind speed at hub-height. The significant exception is at onset of stall and well developed stall where the sound power increases by between 2dB and 8dB. During stall conditions the wind speed influences the sound power level, as expected. At maximum rotor speed (16rpm) the effect of negative blade pitch diminishes with respect to noise. This is simply because onset of stall is delayed as rotor speed increases.

Although wind speed affects sound power in lightly stalled and stalled conditions, the wind speed dependency on noise is almost negligible outside stall. This tempts us to visualize the data in Fig.2 as contours depending only on rotor speed and pitch. Where wind speed variations impact the sound power (i.e. in stall) the contours are extracted for data at wind speeds around 8m/s, see Fig.3.

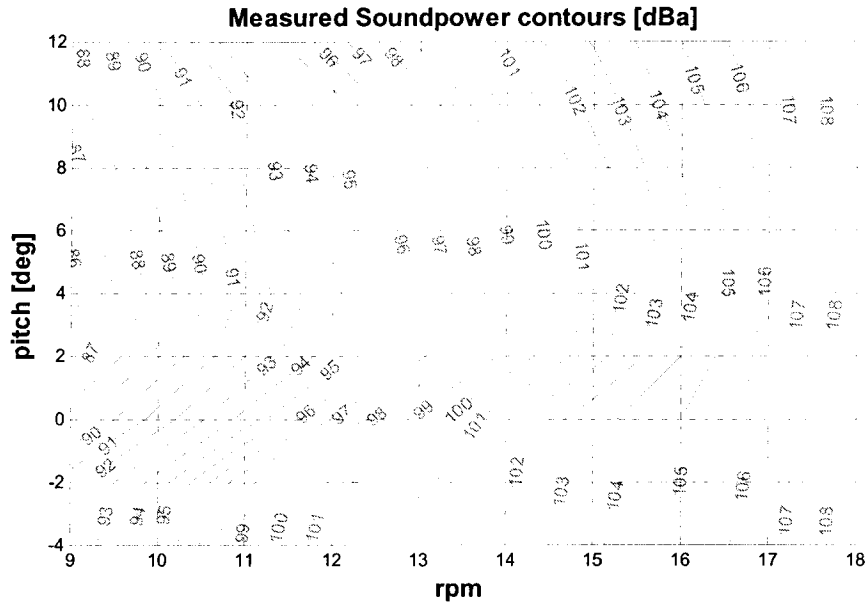


Figure 3: Measured sound power level contours [dB(a)] for the Høvsøre SWT-2.3-93

3. Aero-acoustic noise calculations of an SWT-2.3-93 and comparison with measurements

The aero-acoustic noise source model is based on the widely referenced experimental work by Brooks, Pope and Marcolini (BPM) [3] who identified distinct types of aero-acoustic noise sources:

- Trailing edge bluntness vortex shedding noise.
- Laminar boundary layer trailing edge vortex shedding noise.
- Turbulent boundary layer trailing edge noise.
- Turbulent boundary layer separation noise.

Another aero-acoustic noise source is turbulent inflow noise. Turbulent inflow noise is generated when blade passage through a turbulent eddy causes cascading into smaller eddies. The model proposed by Amiet [4] is used.

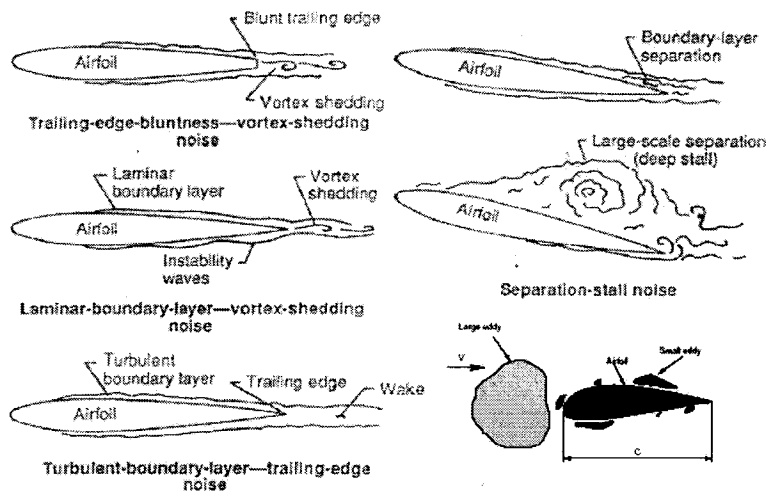


Figure 4: The 5 aero-acoustic noise sources in the model

The models by [3] and [4] have been developed further. The BPM model was originally derived from acoustic measurements on the NACA 0012 airfoil using measured boundary layer quantities from another experiment by Schlinker & Amiet [5]. Aiming at airfoil geometry flexibility, the boundary layer quantities can be readily obtained from Drelas Xfoil [6] boundary layer solver. Airfoil geometry impact was also introduced for the turbulent inflow noise model in recent works by Moriarty et al. [7], [8].

The actual acoustic source model implementation is the open-source software NAFNoise by Moriarty [9]. A tailor-made version of Xfoil lies nested inside this code. NAFNoise is used as an engine by the Siemens Wind Power turbine performance in-house code Xblade to populate a database from which acoustic calculations can be efficiently computed along with other relevant turbine data.

The aero-acoustic noise propagation model takes into account the following physical contributions:

- Directivity.
- Distributed source calculation.
- Air absorption.
- Wave refraction due to atmospheric shear.
- Doppler effect.

Absent from the above list is terrain slope – a non-inclined flat terrain is assumed. Multiple ground reflections from the same sound ray are not accounted for either. This phenomenon could come into play at long downwind distance from the turbine due to the stratification of the atmospheric shear layer.

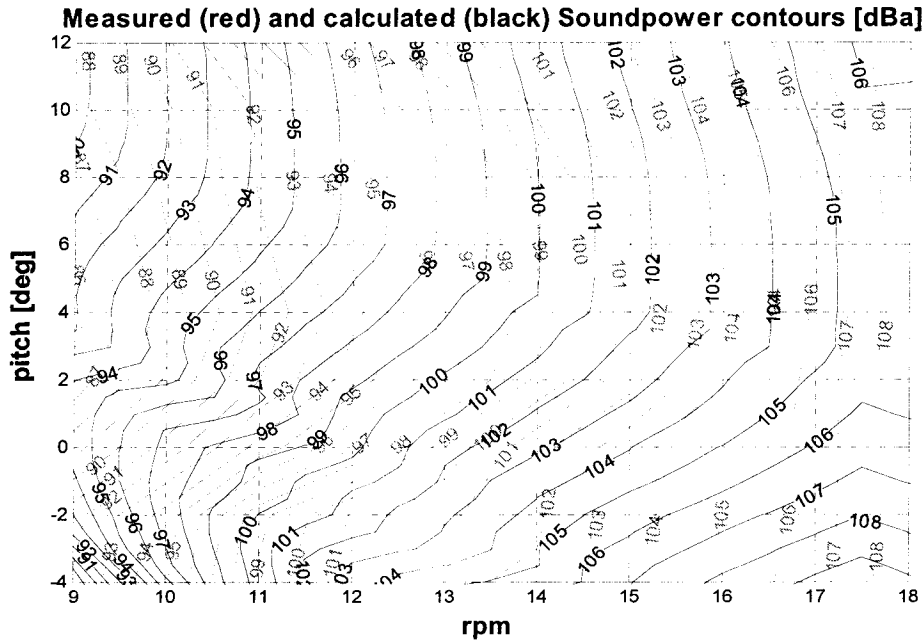


Figure 5: Calculated sound power level contours [dB(a)] superposed on measured, see Fig.3

Figure 5 shows the ability of the aero-acoustic model to reproduce the measured data at a wind speed of 8m/s. From a rotor speed of 12rpm and upwards the model fits within a 2dB margin. The exception is in the stall region at high rotor speeds where the model overestimates the separation noise increase for decreasing pitch angles. Apart from this, the rather weak sound power dependency on pitch is well captured by the model. Note also that both measurements and model indicate an acoustically optimal pitch setting of 4-6 degrees for rotor speed above 12 rpm.

The calculated contours were not the first output from the model with default settings; the NAFNoise parameters have been tuned to provide a reasonable fit. The details of these model-to-measurement adjustments are:

- The trailing edge bluntness vortex shedding noise component is over-predicted more than 5dBs by the model, hence it was excluded from the total noise computations.

- For the turbulent boundary layer noise components, the BPM model was used with boundary layer quantities calculated by Xfoil. An alternative model by Moriarty & Migliore [10] is implemented in NAFNoise and was tested. The results in this case were disappointing compared to the BPM model. Neither the absolute sound power level nor the trends (gradients) of the contours came close to the measured reference of Fig.3.
- Although turbulent boundary layer noises (trailing edge and separation) are the main contributors to the total sound spectrum envelope, turbulent inflow is responsible for the lower frequency part of the spectrum, which at times contributes significantly to the overall sound power level. Turbulence levels and the length scale of eddies interacting with the blade must be considered.

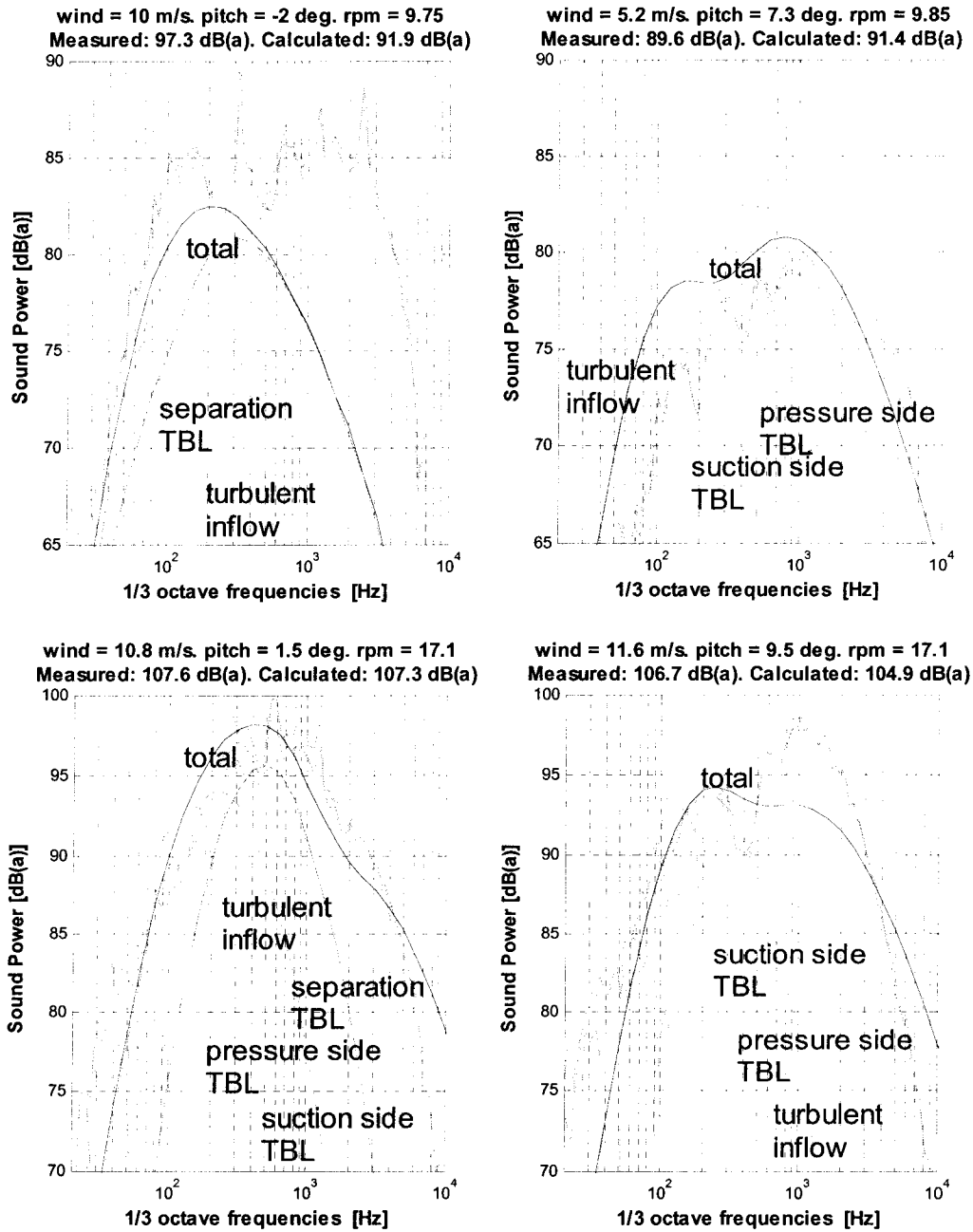


Figure 6: Measured and calculated spectra at 4 different operation points

The sound power level is the primary scalar concerning aero-acoustics and the obvious choice for comparison. It is an accumulated quantity found by adding the individual source types and integrating over the frequency spectrum (either 1/3-octaves or 1/12-octaves). A nice fit on the sound power level indicates that the model is suitable, but a more detailed comparison is obtained by comparing the spectra. Figure 6 shows calculated (individual noise types + total) and measured spectra at four very different operational points of the turbine, where a number of 10s bins had almost identical wind-pitch-rpm settings of the turbine:

- Low pitch, low rotor speed: Stall region. Turbulent boundary layer separation and turbulent inflow noise dominate. The high background noise (breaking waves) caused a low signal-to-noise ratio, which is probably part of the explanation for the poor fit.
- High pitch, low rotor speed: No-stall region. Turbulent boundary layer trailing edge noise and turbulent inflow noise dominate. Good fit, even though the turbulent inflow noise seems over-predicted by the model.
- Low pitch, high rotor speed: approaching stall region. Turbulent boundary layer separation and turbulent inflow noise dominate. Excellent fit.
- High pitch, high rotor speed: No-stall region. Turbulent inflow noise dominates in model. Measurement indicates that the turbulent boundary layer trailing edge noise is actually the dominating source. Nice overall fit, especially for the turbulent inflow noise.

4. Options for low-noise power production

Once the blade is manufactured, there are only 2 handles for noise-reduction: Blade pitch and rotor speed. As shown in Figure 7, every low-noise operation comes with a price. At 8m/s the operational setpoint that yields maximum power output is at -1deg pitch and 14.9 rpm. Pitching out from here (positive direction) aiming at a 1dB reduction will cost in the order of 3% power. On the other hand, reducing rotor speed until 1dB reduction is reached would cost a minimum of just 0.3% power.

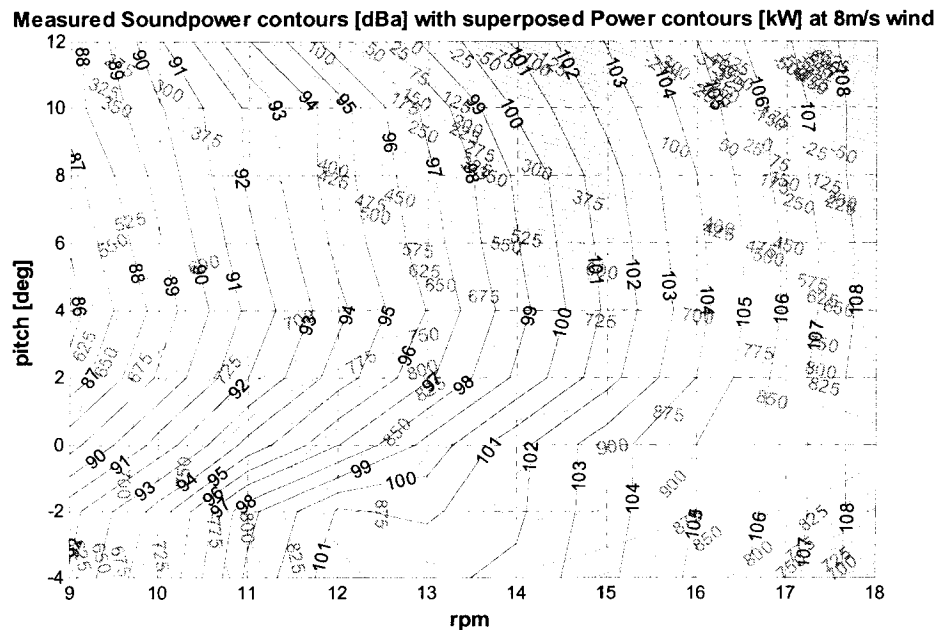


Figure 7: Measured sound power level contours [dB(a)] with elec.power contours [kW] superposed.

The aero-acoustic model has been used for the analysis below. It has been tuned to within a reasonable accuracy and will provide sound-power gradients in all directions (wind, rotor speed, pitch).

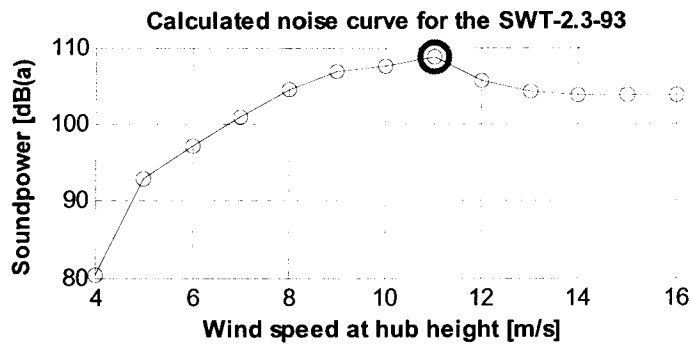


Figure 8: Calculated wind-sound power relation for optimal pitch/rotor speed settings (production curve).

Figure shows that the maximum sound power level occurs at 11m/s. The reason for the noise decline with further increasing wind is that rated power has been reached, and the blades will pitch out away from stall. Hence, low-noise power production must focus on the 11m/s operating conditions.

The obvious benefit of an aero-acoustic model is that it can operate on imaginary blades and provide basis for a very specific blade optimization, beyond the scope of this brief introduction. A very basic gradient analysis for simple operating and geometric variations of the existing 45m blade SWT-2.3-103 is presented in Table 1. All data has been calculated with the in-house turbine performance code into which the aero-acoustic code has been implemented. The noise values refer as always to the A-weighted sound-power. AEP is the annual power production. The flapwise load parameter is the estimate of the Weibull-weighted fatigue-moment of the blade root from flapwise blade dynamics.

Parameter variation	Noise gradient [dB / change]	AEP gradient [% / dB]	Flapwise gradient [% / dB]
Blade pitch [deg]	-1.05 dB/deg	-0.2	0.0
Rotor speed [rpm]	0.72 dB/rpm	-0.5	-1.5
Blade chord [%]	-0.03 dB/(%chord)	2.5	28
Blade thickness [%]	-0.02 dB/(%thickness)	-8.4	4.5

Table 1: Calculated gradient analysis for SWT-2.3-103.

Table 1 shows that dB-reduction can be achieved by blade pitching with minimum AEP sacrifice and without increasing flaploads. However, it should be noted that the aero-acoustic model over-predicts the noise sensitivity to pitch-variations when compared with measurements (Figure 5, high rotor speed and negative pitch).

Reducing rotor speed at 11m/s costs 0.5% power per reduced dB, and comes with a reduced load benefit.

Increasing chord will actually lower the noise level and yield higher AEP, but the price paid in load-increase is substantial. Thicker blades also tend to lower the noise, but AEP drops and loads increase.

5. Conclusions and future work

Conclusions regarding aero-acoustic model validation:

- The model of trailing edge bluntness noise over-predicts measurements by 5+ dB. Consequently, bluntness noise is not included in any of the calculations presented here.
- Turbulent boundary layer separation noise is qualitatively well reproduced by model, but the magnitude is over-predicted. Rotational 3D-effects that postpone stall might explain part of the discrepancy.
- Turbulent boundary layer trailing edge noise model fits measurements well.
- Turbulent inflow noise model generally fits well at low frequencies, where it is the dominating noise source, and the magnitude is comparable to measurements.
- Overall the model can deliver accurate predictions once the deficiencies (bluntness) and weaknesses (separation noise) are identified.

Conclusions regarding low-noise turbine operation potentials

- Positive pitching (away from stall) is the primary handle according to model – however, measurements indicate much less pitch sensitivity. Reduced rotor speed also reduces noise at a low cost according to both model and measurements.
- Chord- and thickness-variations do not show significant impact on acoustics, and AEP- and/or load-cost is significant.
- Every dB-favourable change has a cost, either on AEP or loads.

Suggestions for future work

- Identify reasons for trailing edge bluntness model inadequacy (manufactured trailing edge smoothing ?).
- Include rotational effects in XFOil (RFOil ?) and analyse its impact on separation noise.

References

1. Brüel and Kjær, Measuring *Wind Turbine Noise with PULSE*, <http://www.bksv.com/2939.asp>
2. Yoshinori, Nii, 2002, *Sound Level Distributions on a Circular Ground Board for Wind Turbine Noise Measurements*. Noise Control Eng. J. 50 (3).
3. Brooks, T. F., Pope, D. S. and Marcolini M. A., 1989, *Airfoil Self-Noise and Prediction*, NASA Reference Publication 1218, National Aeronautics and Space Administration, USA.
4. Amiet, R. K., 1975, *Acoustic Radiation From an Airfoil in a Turbulent Stream*, J. Sound Vib., 41, pp 407-420.
5. Schlinker, R. H. and Amiet, R. K., 1979, *Refraction of Sound by a Shear Layer – Experimental Assessment*. AIAA Paper 79-0628
6. Drela, M. 1989, XFOIL: *An analysis and Design System for Low Reynolds Number Airfoils*. Conference on Low Reynolds Number Aerodynamics. University Notre Dame.
7. Moriarty, P., Guidati, G., Migliore, P., 2004, *Recent Improvement of a Semi-Empirical Aeroacoustic Prediction Code for Wind Turbines*, Proc., 10th AIAA/CEAS Aeroacoustics Conference, Manchester, UK, AIAA 2004-3041
8. Moriarty, P., Guidati, G., Migliore, P., *Prediction of Turbulent Inflow and Trailing-Edge Noise for Wind Turbines*, Proc., 11th AIAA/CEAS Aeroacoustics Conference, Monterey, California, AIAA 2005-2881, 2005.
9. Moriarty, P., 2005, *NAFNoise User's Guide*, <http://wind.nrel.gov/designcodes/simulators/NAFNoise>
10. Moriarty, P. and Migliore, P., 2003, *Semi-Empirical Aeroacoustic Noise Prediction Code for Wind Turbines*, NREL/TP-500-34478, National Renewable Energy Laboratory, Golden, CO.

In the Matter of the Application of
High Prairie Wind Farm I, LLC for
a Site Permit for a 98.9-Megawatt
Large Wind Energy Conversion
System in Mower County, Minnesota

**FINDINGS OF FACT,
AND CONCLUSIONS**

**PUC DOCKET NO.
PT6528/WS-06-91**

The above-entitled matter came before the Minnesota Public Utilities Commission (PUC), pursuant to an application by High Prairie Wind Farm I, LLC, for a site permit to construct, operate, maintain and manage a 98.9-Megawatt (MW) nameplate capacity Large Wind Energy Conversion System (LWECS) and associated facilities in the townships of Lodi, Clayton and Bennington in Mower County, Minnesota. The Site permit is to be issued to High Prairie Wind Farm I, LLC a limited liability company.

All of the proposed wind turbines, foundations, transformers, feeder lines and collection lines will be located in Mower County, Minnesota. Other associated facilities will include pad mounted step-up transformers for each wind turbine, access roads and a 34.5 kV electrical collection and feeder system. A new project substation, located in Section 23 of Clayton Township and a new 161 kV transmission line, approximately nine miles long, will be built to carry power from the High Prairie Wind Farm project to the Adams Substation. High Prairie Wind Farm I, LLC will sell and deliver power from this project to Xcel Energy at the Adams Substation.

STATEMENT OF ISSUE

Should High Prairie Wind Farm I, LLC, be granted a site permit under Minnesota Statutes section 116C.694 to construct a 98.9-megawatt Large Wind Energy Conversion System in Mower County, Minnesota?

Based upon the record and proceedings created in this proceeding, the Public Utilities Commission makes the following:

FINDINGS OF FACT

Background and Procedure

1. On February 10, 2006, Horizon Wind filed a complete site permit application on behalf of High Prairie Wind Farm I, LLC, for the High Prairie Wind Farm I, with the Public Utilities Commission for 98.9- megawatts of nameplate wind power generating capacity. (Exhibit 1)
2. Department of Commerce staff determined that the February 10, 2006, application complied with the application requirements of Minnesota Rules, part 4401.0450. In a

briefing paper to the PUC, dated March 7, 2006, DOC Energy Facility Permitting staff recommended that the PUC accept the application. (Exhibit 2)

3. On March 7, 2006, the PUC issued an order accepting the application for the High Prairie Wind Farm I and associated facilities. The March 7, 2006, PUC Order also made a preliminary determination to issue a draft site permit for review and comment. (Exhibit 3)
4. DOC EFP staff prepared a Notice of Application Acceptance, Availability of Draft Site Permit for Review and Comment and Public Information Meeting in Adams, Minnesota on March 27, 2006 to receive comments on the site permit application, draft site permit, and to review the permitting process for LWECS. (Exhibit 4)
5. On March 13, 2006, the EFP staff published in the EQB Monitor notice of the March 27, 2006, public information meeting in Adams, Minnesota, and the availability of the draft site permit, EQB Monitor, Volume 30, No. 6, March 13, 2006. (Exhibit 5) The published notice contained all of the information required by Minnesota Rules part 4401.0550 subp. 1. Notice also appeared on the PUC web site.
6. Published notice of the site permit application, DOC public information meeting and opportunity to comment on the draft site permit appeared in the LeRoy Independent on March 16, 2006; Austin Daily Herald on March 14, 2006; and the Meadow Area News on March 15, 2006. (Exhibits 6, 7, and 8) The published notice provided: a) location and date of the public information meeting; b) description of the proposed project; c) deadline for public comments on the site permit application and draft site permit (April 12, 2006); d) description of the PUC site permit review process; and e) identification of the public advisor. The notice published meets the requirements of Minnesota Rules part 4401.0550 subp. 2.
7. The High Prairie Wind Farm I, LLC permit application, draft site permit and notice of public information meeting was distributed to each landowner affected by the proposed project, township clerks within the site boundary, county and other required officials on March 15, 2006. (Exhibit 9)
8. The DOC EFP staff held a public information meeting on March 27, 2006, in Adams, Minnesota, to receive comments on the site permit application and draft site permit. Approximately 60 people attended the meeting. Representatives from Horizon Wind and FPL Energy were also present. DOC EFP staff provided an overview of the permitting process and draft site permit and responded to questions about the permitting process. Horizon Wind and FPL Energy reviewed and responded to questions about the project. Questions were asked about access roads, project timing, easement agreements and conditions, television and radio interference, location of distribution and feeder lines and the 161 kV transmission line, and project decommissioning. No significant issues or concerns were raised about the permitting process, the proposed project, or conditions in the draft site permit at the public meeting. The public comment period on the project closed on April 12, 2006.

The Permittee

9. The Applicant (High Prairie Wind Farm I, LLC) will own the Project including all equipment up to the high side of the 161 kV busbar at the Project substation, as well as jointly own, with High Prairie Wind Farm II, LLC, the 161 kV transmission line interconnecting the Project to the Adams Substation.
10. High Prairie Wind Farm I, LLC and High Prairie Wind Farm II, LLC are currently subsidiaries of Horizon Wind Energy LLC (Horizon), which is a subsidiary of The Goldman Sachs Group, Inc.
11. Upon completion of development activities, High Prairie Wind Farm I, LLC will be acquired by FPL Energy Mower County, LLC, which is a wholly owned subsidiary of FPL Energy, LLC (FPLE). FPLE will be responsible for project management, procurement, construction, commissioning, operation, and long-term ownership of the Project.

Project Description

12. The proposed project will use 43 Siemens 2.3 MW wind turbines for an installed nameplate capacity of 98.9 MW. The turbine has a hub height of 80 meters (262 feet) and a rotor diameter of 93 meters (305 ft). The rotor consists of three blades mounted to a rotor hub. The hub is attached to the nacelle, which houses the gearbox, generator, brake, cooling system, and other electrical and mechanical systems. The rotor swept area is 6,800 meters² (73,195 feet²). The rotational speed of the rotor will be between six and 16 revolutions per minute. Maximum rotor tip speed is 164 miles per hour.
13. The turbine blades are approximately 149 feet long and will be light grey in color. The overall height of the tower, nacelle and blade will be approximately 413 feet when one blade is in the vertical position. The project will also include an underground-automated supervisory control and data acquisition system (SCADA) for communication purposes. Two permanent meteorological towers will be used as part of the communication system. Other components of the project include a concrete and steel foundation for each tower, pad-mounted step-up transformers, all weather class 5 roads of gravel or similar material, and an underground and overhead electric energy collection system.
14. The Siemens 2.3 MW Mk II Wind Turbine is a three blade, upwind, active yaw, and active aerodynamic control regulated wind turbine with power/torque control capabilities. The rotor utilizes blade pitch regulation and variable speed operation to achieve optimum power output at all wind speeds. The variable speed operation minimizes power and torque spike delivered from the rotor to the drive train resulting in improved long-term reliability. Each turbine is equipped with a wind direction sensor. The wind direction sensor communicates with the computer system, which evaluates the measured wind parameters, and within a specified time interval, activates the yaw drives to align the nacelle to the wind direction.

15. Each turbine is interconnected through an underground electrical collection system at 34.5 kV. The 34.5 kV feeder lines from the project collection system feed the power to the independent breaker positions at the proposed project substation. The substation steps up the voltage from the 34.5 kV collection system to the transmission system level of 161 kV. The applicant is proposing to place the 34.5 kV feeder lines on public road rights-of-way where possible. Feeder lines will be underground unless conditions require that overhead lines be used. All of the proposed feeder lines would connect to the proposed project Substation in section 23 of Clayton Township.
16. Each tower will be secured by a concrete foundation that will vary in size depending on the soil conditions. A control panel that houses communication and electronic circuitry is placed in each tower. In addition, a step-up, pad-mounted transformer is necessary for each turbine to collect the power from the turbine and transfer it to a 34.5 kV collection system via underground cables.
17. All turbines meteorological tower systems will be interconnected with fiber optic communication cables that will be installed underground. The communication cables will run back to a central host computer which will be located either at the project substation or at the operations and maintenance facility where a supervisory control and data acquisition (SCADA) system will be located. Signals from the current and potential transformers at each of the delivery points will also be fed to the central SCADA host computer. The SCADA system will be able to give status indications of the individual wind turbines and the substation and allow for remote control of the wind turbines locally or from a remote computer. This computerized supervisory control and data acquisition network will provide detailed operating and performance information for each wind turbine. The Permittee will maintain a computer program and database for tracking each wind turbine's maintenance history and energy production. The DOC EFP staff will have viewer access to the SCADA system.

Wind Resource Considerations

18. The High Prairie Wind Farm will be located in Mower County along the central divide at 1,350-1,420 feet above sea level. Land use in the project area is agricultural with intensive farming and some grazing activities and, as a result, there are few trees or structures in the proposed project site to inhibit the wind as it passes over the site. The wind resource in the project area is well documented by the Wind Resource Analysis Program (WRAP) Report (2002) prepared by the Minnesota Department of Commerce. The WRAP Report presents wind analysis data from monitoring stations across the state of Minnesota. In the vicinity of the project area, the mean annual wind speed at an elevation of 230 feet above ground level is mapped as 15.2 to 16.4 miles per hour.
19. For this project the wind turbines will be sited in strings along ridgelines within the site boundaries. The wind turbines are sited so as to have good exposure to winds from all directions with emphasis on exposure to the prevailing southerly and northwest winds. The turbine spacing, according to site permit application, maximizes use of the available

wind and minimizes wake and array losses within the topographical context of the site. The turbine strings are typically oriented west-northeast, which is roughly perpendicular to the prevailing southerly and northwest winds. Turbine placement has been designed to provide 3 to 3.5 rotor diameter spacing in the east-west direction and 15 rotor diameter spacing in the north-south direction, with respect to the predominant energy production directions. Given the prevalence for southerly and northwest winds, the spacing is widest in the north-south direction. Greater or lesser spacing between the turbine strings may be used in areas where the terrain dictates the spacing. This is addressed in the permit at III.E.5. Individual, isolated turbine sites are avoided to minimize interconnection and access costs. Sufficient spacing between the turbines is utilized to minimize wake losses when the winds are blowing parallel to the turbine rows.

20. The project projected average annual output will be approximately 342,650 megawatts hours per year (MWh). This calculation takes into account, among other factors, energy losses in the gathering system, mechanical availability, array losses, and system losses. Each turbine is estimated to produce 7,968 MWh a year on average. The base energy calculation presented assumes a normal or average wind year. The maximum variation in energy is within +/- 15 percent. Based on the data, one would expect the annual variation in energy at the project site to be within 10 percent of the mean during most years.
21. Most of the land within the project site is actively farmed. Corn and soybeans are the dominant row crops. Alfalfa and pasture are additional crops within the site boundary.
22. The project site as proposed includes approximately 10,000 acres in the townships of Lodi (Sections 4, 5, 7, 8), Clayton (Sections 13, 14, 23-28, 33-36), and Bennington (Sections 18-21) in Mower County. The land is predominately agricultural, with some scattered small woodlots, and wetlands. The proposed wind turbine site layout in the site permit application shows where the proposed facilities, such as towers, roads and the underground electrical lines, could be located. These locations are subject to change. It is estimated that the proposed facilities will result in the permanent disturbance of approximately 65 acres of land, primarily for roads and towers. Approximately 400 to 500 acres of land will be temporarily disturbed during construction of the wind farm for contractor staging areas, foundation construction, underground power lines, and tower and turbine assembly. Roads are expected to be about 36 to 40 feet wide.

Land Rights and Easement Agreements

23. In order to build a wind plant, a developer needs to secure site leases and easement option agreements to ensure access to the site for construction and operation of a proposed project. These lease or easement agreements also prohibit landowners from any activities that might interfere with execution of the proposed project.
24. The Applicant has obtained lease and easement option agreements and/or rights to such agreements with landowners for land within the project site boundary necessary for installation of the components of the wind farm. These rights and easements will be able to support the proposed project.

Written Comments and Letters Received by April 12, 2006

25. By the close of the comment period on April 12, 2006, 2005, the PUC had received one comment letter on the proposed High Prairie Wind Farm I, project. Another comment letter was received on May 9, 2006 from the Minnesota Historical Society.
26. The comment letter from the Minnesota Department of Natural Resources, dated April 12, 2006. (Exhibit 10) The DNR offered several comments in their letter that addressed information in the application and suggested that areas disturbed by installation of the feeder lines be seeded with native short-grass species to improve existing habitat conditions. Reseeding is most likely to occur in road rights-of-way and is addressed in the site permit (III.B.9.).
27. The comment letter from the Minnesota Historical Society, received May 10, 2006, dated May 9, 2006, recommended a survey of all areas of proposed ground disturbance be completed. The MHS also noted that "if the project area can be documented as previously disturbed or previously surveyed, we will re-evaluate the need for the survey." (Exhibit 11) A Phase I Archaeological Survey will be conducted within the areas that will be permanently or temporarily impacted during construction or operation of the Project.

Site Criteria

Minnesota Rules chapter 4401 applies to the siting of Large Wind Energy Conversion Systems. The rules require applicants to provide a substantial amount of information to allow the PUC to determine the potential environmental and human impacts of the proposed project and whether the project is compatible with environmental preservation, sustainable development, and the efficient use of resources. Minn. Rules parts 4401.0450 through 4401.0600. The following analysis addresses the relevant criteria that are to be applied to a LWECS project.

Human Settlement, Public Health and Safety

28. The site is in an area of low population density, with little residential, commercial or industrial development on or near the site. As a result, the impact of the proposed LWECS on human settlement, public health and safety will be minimal. The site permit condition (III. C.) specifies conditions for setbacks from residences and roads. The proposed wind turbine layout meets or exceeds those requirements. The proposed project is not expected to affect any water wells (used, unused or unsealed) or any rural water system that services the area.
29. There will be no displacement of existing residences or structures in siting the wind turbines and associated facilities.
30. The project will comply with the Federal Aviation Administration requirements with respect to lighting. See site permit condition III.E.4.

31. High Prairie Wind I, LLC will provide security during construction and operation of the project, including fencing, warning signs, and locks on equipment and facilities. High Prairie Wind I, LLC will also provide landowners and interested persons with safety information about the project and its facilities. See site permit condition III.B.15.
32. In winter months ice may accumulate on the wind turbine blades when the turbines are stopped or operating very slowly. Furthermore, the anemometer may ice up at the same time, causing the turbine to shut down during any icing event. As weather conditions change, any ice will normally drop off the blades in relatively small pieces before the turbines resume operation. This is due to flexing of the blades and the blades' smooth surface. Although turbine icing is an infrequent event, it remains important that the turbines are not sited in areas where regular human activity is expected below the turbines or in the immediate proximity during the winter months.
33. Each turbine will be clearly labeled to identify each unit and a map of the site with the labeling system will be provided to local authorities as part of the fire protection plan.

Noise

34. Wind turbines do generate noise. According to sound pressure level tests and estimations provided by High Prairie Wind I, LLC in its application for a site permit, the sound pressure level is expected to be lower than the Pollution Control Agency noise standard of 50 dBA measured at the closest residence. See Minn. Rules part 7030.0040. For this project, the site permit application indicates that at a distance of 804 feet, the noise measured at a home will meet the requirements of the Nighttime L50 standard of 50 dB(A). This model is conservative as it does not allow for all noise attenuation that may occur from the elevated source (turbine), but it also does not account for wind or cumulative effects. The typical proposed setback of 1,500 feet from occupied residences will ensure that cumulative noise levels resulting from multiple turbines and noise drift resulting from wind will not exceed regulator limits at any residence.

Visual Values

35. The placement of 43 turbines will affect the appearance of the area. The wind turbines will be mounted on tubular towers that are up to 265 feet tall. The rotor blades will have a diameter of up to 297 feet. The turbine towers and rotor blades will be prominent features on the landscape. There will be intermittent, expansive views of the turbines to passing motorists on local, county and state highways. Motorists and drivers on local township and county roads will travel within 800 feet of some turbines.
36. The visual impact of the wind turbines will be reduced by the use of a neutral paint color. The only lights will be those required by the Federal Aviation Administration. All site permits issued by the PUC require the use of tubular towers; therefore, the turbine towers will be uniform in appearance. These wind turbines will be the dominant visual features on the landscape. Blades used in the proposed project will be light grey. The wind

turbines in this project, while prominent on the landscape, will also blend in with the surrounding area. The project site will retain its rural character. The turbines and associated facilities necessary to harvest the wind for energy are consistent with existing land use and agricultural practices.

37. From one perspective, the proposed project might be perceived as a visual intrusion on the natural aesthetic value on the landscape, characterized by 43 tubular steel structures approximately 265 -feet high, standing on formerly undisturbed ridgelines, with 148.5-foot blades, for an overall height of 415 feet when one blade is in the vertical position. Wind plants have their own aesthetic quality, distinguishing them from other non-agricultural uses. The existing wind farm south of Adams and the numerous wind farms on the Buffalo Ridge have altered the landscape from agricultural to wind plant/agricultural. This project will increase the visual impact to the area. The cumulative effect of the proposed project will increase both the industrial appearances of the wind plants in the area and the areas from which they will be seen. Because wind generation development is likely to continue in Mower County, this visual impact will continue to increase the size of the wind plant/farm footprint as the turbines harvest the wind resources of Mower County for energy. To date the presence of numerous wind turbines on Buffalo Ridge has been well accepted by the people who live and work in the area.
38. Several other measures will also be taken to minimize visual intrusion such as: low profile access roads, project access roads will avoid cuts and fill, the areas affected by construction will be restored after construction is completed, turbines will not be illuminated unless required by FAA regulations, and the turbine rotor size will require increased turbine spacing to minimize wake loss, therefore the turbines will be spaced further from one another than in several projects on Buffalo Ridge. The visual scale of the High Prairie Wind Farm will be similar to those on the Buffalo Ridge.

Recreational Resources

39. Recreational opportunities in Mower County include: hunting, fishing, and snowmobiling, campgrounds and trails. Hunting is permitted in designated Minnesota Department of Natural Resources Wildlife Management Areas (WMA's), unless otherwise posted.
40. The Shooting Star Prairie State Natural Area (SNA) is located approximately 3 miles southeast of the Project Area on the south side of Highway 56. SNAs protect rare and endangered species habitat, unique plant communities and geologic features that possess exceptional scientific or educational values. SNAs are open for observation, education and research. Lake Louise is a 1,170 acre State Park also located southeast of the Project Area. This park is valued for its open landscape and lush hardwood forest.
41. Recreational activities will not be significantly impacted by the Project. Visual impacts would be the most evident impact to people who use the WMAs and SNAs for recreation. The town of Taopi is located within one mile of the Project Area and the turbines will be

visible to the residents. The turbines will be noticeable to persons using the WMA's. Turbines will not be located in WMA's or in any local parks. Turbine operations are not expected to affect the natural areas in any material way and no adverse impact on wildlife management areas or practices is expected.

Infrastructure

42. The proposed wind farm is expected to have a minimal effect on the existing infrastructure. The proposed project will use underground cables for the collector lines on private property within the wind farm. The feeder lines associated with the project are currently planned to be underground. Any above ground feeder lines, if used, would be wood-pole, 34.5 kV typical of wind project feeder lines in the Buffalo Ridge area. The feeder lines will deliver the energy from the wind farm to the project substation. Placement of collector and feeder lines is addressed in the site permit at III.E.7. and 8.
43. The project will require the use of public roads to deliver construction supplies and materials to the work site. Site permit condition III.B.8. addresses this topic. Construction of the project requires the addition of several miles of access roads that will be located on private property. The access roads will be routed along the wind turbine strings, fence lines, and field edges to minimize disturbance to agricultural activities. The typical access road will be 36 to 40 feet in width and covered in Class 5 gravel (or similar material). The access roads will be low profile roads to allow for the movement of agricultural equipment. The site permit at III.B. 8 (b) addresses this topic. During operation and maintenance of the wind plant, operation and maintenance crews, while inspecting and servicing the wind turbines, will use the access roads. Periodic grading or other methods are necessary to maintain road integrity. The Permittee may do this work or contract it out.
44. If access roads must be installed across streams or drainage ways that are considered public waters, the Permittee in consultation with the Minnesota Department of Natural Resources will design, shape and locate the road so as not to alter the original water flow or drainage patterns. Any work required below the ordinary high water line, such as road crossings or culvert installation, will require a permit from the Minnesota Department of Natural Resources.
45. The proposed wind farm will not affect water supplies, railroads, telecommunication facilities, and radio reception. The presence or operation of the wind plant could potentially impact the quality of television reception in the area. Previous work on television reception issues indicates that in some cases new antennas or relocation of existing antennas can restore television signal strength reception. High Prairie Wind I, LLC will address the concerns of residents in the area of the project site before and after the project construction to document and mitigate any television reception impacts that might occur. This is addressed in the site permit at III.D.3.
46. Construction, operation, and maintenance of the proposed wind plant will comply with all of the required federal and state permit requirements.

Community Benefits

47. The project will provide local tax revenues from a production tax on the wind energy produced by the turbines. No significant adverse impact on public services is expected. Wear and tear on roads will occur as a result of the transport of heavy equipment and other materials. The site permit at III.B.8. addresses road damages. Landowners with turbine(s) on their property will also receive payments from the Permittee for energy generated by the turbine(s).
48. To the extent that local workers and local contractors are capable, qualified, and available, High Prairie Wind Farm I, LLC will seek to hire them to construct the proposed project. The hiring of local people will expand employment opportunities in this area of the state and keep money in the local economy. Once constructed, the project will be staffed with several full time site technicians and a wind plant supervisor.

Effects on Land-Based Economies

49. The wind turbines and access roads will be located so that the most productive farmland will be left as intact as possible. However, the project will displace approximately 65 acres of agricultural land. The site permit at III.B. 2., 3., 4., 5., 6., 7., 8(c), 9., and 10. addresses mitigation measures for agricultural lands. The proposed project does not affect any sand or gravel operations.

Archaeological and Historical Resources

50. A review of the Minnesota State Historic Preservation Office (SHPO) computer database indicates no known archaeological sites are documented in the project Cultural Study Area. The Project Area does not seem to have the same high prehistoric archaeological potential as the nearby Grand Meadow Quarry Archaeological District. However, there is enough potential to necessitate a Phase I Field Survey of the Cultural Study Area. A Phase I Field Survey will serve to identify any additional area of historic interest. The Project, would avoid, when practicable, or cause minimal impacts to archaeological and historic sites.
51. A Phase I Archaeology survey is recommended for all the proposed turbine locations, access roads, and junction boxes to document any previously unrecorded archaeological sites within the project site. The site permit at III. D.2. requires High Prairie Wind Farm I, LLC to consult with the Minnesota Historical Society. A Phase I archaeology survey consists of the following tasks: consultation, documentation, and identification.
52. If any archaeological sites are found during the Phase I survey, their integrity and significance should be addressed in terms of the site's potential eligibility for placement on the National Register of Historic Places (NRHP). If such sites are found to be eligible for the NRHP, appropriate mitigative measures will need to be developed in consultation with the Minnesota State Historic Preservation Officer (SHPO), the State Archaeologist,

and consulting American Indian communities. The site permit also requires the Permittee to stop work and notify the Minnesota Historical Society and PUC if any unrecorded cultural resources are found during construction.

Air and Water Emissions

53. No harmful air or water emissions are expected from the construction and operation of the LWECS.

Animals and Wildlife

54. Neither construction nor operation of the project is expected to significantly impact wildlife. Based on studies of existing wind power projects in the United States and Europe, the only impact of concern to wildlife would primarily be to avian and bat populations. The final report on avian monitoring studies at Buffalo Ridge, Minnesota "Final Report-Avian Monitoring Studies at the Buffalo Ridge, Minnesota Resource Area: Results of a 4-Year Study" (September 2000) identified the following impacts:
- a) Following construction of the wind turbines, there is a reduction in the use of the area within 100 meters of the turbines by seven of 22 species of grassland breeding birds. It was hypothesized that lower avian use may be associated with avoidance of turbine noise, maintenance activities, and less available habitat. The researchers stated "on a large scale basis, reduced use by birds associated with wind power development appears to be relatively minor and would not likely have any population consequences on a regional level." (p. 44)
 - b) Avian mortality appears to be low on Buffalo Ridge, compared to other wind facilities in the United States, and is primarily related to nocturnal migrants. Resident bird mortality is very low and involves common species. The researchers stated that "based on the estimated number of birds that migrate through Buffalo Ridge each year, the number of wind plant related avian fatalities at Buffalo Ridge is likely inconsequential from a population standpoint." (p. iv)
55. Bat mortality was also studied at Buffalo Ridge, instigated by bat collision victims found during the avian monitoring studies. The bat study was conducted in 2001 and 2002. ("Bat Interactions with Wind Turbines at the Buffalo Ridge, Minnesota Wind Resource Area," November 2003). The overall conclusion is that bat activity at turbines and the numbers of bat fatalities do not share a statistical relationship. Bat collisions were found to be very rare, given the amount of bat activity documented at the turbines. Most fatalities involved migrating bats, a wind-plant related mortality "is possibly not sufficient to cause significant, large-scale population declines." (p. 61)
56. Mitigation measures are also prescribed in the site permit and include but are not limited to: a) a pre-construction inventory of existing biological resources, native prairie, state listed and threatened species and wetlands in the project area; b) turbines and associated facilities will not be constructed in wildlife management areas, recreation and state and

scientific natural areas; c) landowner approval will be negotiated prior to any removal of trees during construction; d) sound water and soil conservation practices will be implemented during construction and operation of the project to protect topsoil and adjacent resources and to minimize soil erosion. This also applies to any work in proximity to watercourses.

Vegetation

57. No Public Waters, Public Water wetlands or forested land are expected to be affected by the project. No groves of trees or shelterbelts will need to be removed to construct and operate the system. Native prairie will also be avoided. If native prairie cannot be avoided, the site permit, at III. C.6. provides for preparation of a prairie protection and management plan.

Soils

58. Construction of the wind turbines and access roads increases the potential for erosion during construction and converts prime farmland to industrial use. The site permit at III. B. 9. requires a soil erosion and sediment control plan. The project will also require a storm water run-off permit from the Minnesota Pollution Control Agency.

Surface Water and Wetlands

59. No towers, access roads or utility lines will be located in Public Water wetlands. See site permit at III.C.5.

Future Development and Expansion

60. It is expected that there will be a second 100 MW phase to the High Prairie Wind Farm Project. A second site permit application will be submitted for the second phase once it has reached certain commercial development milestones. Current information suggests the windy areas of Mower County are large enough to accommodate more wind facilities. In the future, turbines used in this area will likely consist of several types and sizes supplied by different vendors and installed at different times.
61. While large-scale projects have occurred elsewhere (California and Iowa), little systematic study of the cumulative impact has occurred. Research on the total impact of many different projects in one area has not occurred. DOC EFP staff continues to monitor for impacts and issues related to wind energy development.
62. The PUC anticipates more site permit applications under Minnesota Statutes section 116C.694 (a). The PUC is responsible for siting of LWECS "in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources." Minnesota Statutes section 116C.693.

63. Minnesota Statutes section 116C.57, subd. 4 requires consideration of design options that might minimize adverse environmental impacts. By using larger turbines, fewer turbines are required, reducing siting needs for turbines and related facilities. Turbines must also be designed to minimize noise and aesthetic impacts. Buffers between strings of turbines are designed to protect the turbines' production potential. The site permit also provides for buffers between adjacent wind generation projects to protect production potential. See site permit at III.C.1.
64. The location and spacing of the turbines are critical to the issues of orderly development and the efficient use of wind resources. Turbines are likely to be located in the best winds, and the spacing dictates, among other factors, how much land area the project occupies. There is strong public support for orderly development of wind energy in Minnesota.
65. One efficiency issue is the loss of wind in the wake of turbines. When wind is converted to rotational energy by the blades of a wind turbine, energy is extracted from the wind. Consequently, the wind flow behind the turbine is not as fast and is more turbulent than the free-flowing wind. This condition persists for some distance behind the turbine as normal wind flow is gradually restored. If a turbine is spaced too close downwind of another, it produces less energy and is less cost-effective. This is the wake loss effect. If the spacing is too far, wind resources are wasted and the projects' footprint on the land is unnecessarily large.
66. For this project, turbine spacing maximizes use of the available wind resources and minimizes wake and array losses within the topographical context of the site. Site topography and wind resources resulted in a layout involving long strips of turbines running parallel to each other and perpendicular to the prevailing wind. The objective was to capture the most net energy possible from the best available wind resource. Allowing for setback from roads and residences and avoiding sensitive areas, High Prairie Wind I, LLC arrived at an average turbine spacing of about 3 to 3.5 rotor diameter spacing in the east-west direction and 15 rotor diameter spacing in the north-south direction, with respect to the predominant energy production directions. Given the prevalence for southerly and northerly winds, the spacing between turbines is greatest in the north-south direction for this project. The wake investigation shows that the estimated array losses for the proposed High Prairie Wind Project will be around 4.13 percent.
67. Other factors that lead to discounts or losses were assumed to be identical for all arrays and include turbine availability loss (2.10 %); icing loss (.5%), power curve degradation loss (1.00%), electrical efficiency loss (2.50%), on-line wind curtailments (1.00%). Total losses are calculated at 11.23 percent.

Maintenance

68. Maintenance of the turbines will be on a scheduled, rotating basis with units normally off for maintenance each day, if necessary. Maintenance on the interconnection points will

be scheduled for low wind periods and coordinated with Xcel Energy. The High Prairie Wind Farm I, LLC will be staffed with site technicians and a wind plant supervisor. The Permittee will construct a facility to house the operation and maintenance efforts for the Project. The approximate 5000 square foot facility will provide office space for the crews, a shop/storage area for spare parts and vehicles, and will house all of the central monitoring equipment for the wind turbines. The building may be built on the Project site, or if the location is convenient, an existing facility may be purchased and modified to function as the operations and maintenance facility.

Site Restoration

69. Decommissioning and site restoration activities will include (1) removal of all turbines and towers; (2) removal of all pad mounted transformers; (3) removal of all above-ground distribution facilities; (4) removal of foundations to a depth of three feet below grade; and (5) removal of surface road material and restoration of the roads and turbine sites to previous conditions to the extent feasible.

Decommissioning Economics

70. The estimated decommissioning cost for the High Prairie Wind Farm I, LLC is approximately \$1.7 million in 2006 dollars in the Project's financials. The Permit requires the Permittee to submit a Decommissioning Plan to the PUC that describes how the Permittee will ensure that the resources are available to pay for decommissioning the project at the appropriate time.
71. To assure that the Project will meet its obligation to dismantle the wind Project, the Permittee will either establish a decommissioning fund in the amount of \$25,000 per wind turbine generator to be held in escrow for the benefit of landowners, provide the landowners a corporate guaranty of the Project's decommissioning obligations from a company with an investment grade credit rating, or provide similar security acceptable to the landowners. The Permittee will establish the decommissioning security during the seventh year of the Project. See Exhibit 1, page 76.

Site Permit Conditions

72. Nearly all of the conditions contained in this site permit were established as part of the site permit proceedings of other wind turbine projects permitted by the Environmental Quality Board and the Public Utilities Commission. No significant comments were received concerning the requirements in the draft site permit distributed for comment on March 7, 2006. Minor changes that provide for clarifications of the draft site permit conditions have been made.
73. The site permit contains conditions that apply to site preparation, construction, cleanup, restoration, operation, maintenance, abandonment, decommissioning and all other aspects of the project.

Based on the foregoing findings, the Minnesota Public Utilities Commission makes the following:

CONCLUSIONS OF LAW

1. Any of the foregoing findings, which more properly should be designated as conclusions, are hereby adopted as such.
2. The Minnesota Public Utilities Commission has jurisdiction under Minnesota Statutes section 116C.694 over the site permit applied for by High Prairie Wind Farm I, LLC.
3. The High Prairie Wind Farm I, LLC application for a site permit was properly filed and noticed as required by Minnesota Statutes section 116C.94 and Minnesota Rules parts 4401.0460 subp 2 and 4401.0550 subp 2.
4. The Minnesota Public Utilities Commission has afforded all interested persons an opportunity to participate in the development of the site permit and has complied with all applicable procedural requirements of Minnesota Statutes section 116C.694 and Minnesota Rules Chapter 4401.
5. No objections were filed with the Minnesota Public Utilities Commission by any governmental unit, affected landowner or any other interested person during the 30-day comment period and no public hearing was requested or is required.
6. The Minnesota Public Utilities Commission is the agency directed to carry out the legislative mandate to site LWECS in an orderly manner compatible with environmental preservation, sustainable development and the efficient use of resources. The proposed 98.9-megawatt High Prairie Wind Farm LWECS project will not create significant human or environmental impacts and is compatible with environmental preservation, sustainable development, and the efficient use of resources.
8. The Minnesota Public Utilities Commission has the authority under Minnesota Statutes section 116C.694 to establish conditions in site permits relating to site layout and construction and operation and maintenance of an LWECS. The conditions contained in the site permit issued to High Prairie Wind Farm I, LLC are appropriate and necessary and within the Minnesota Public Utilities Commission's authority.

Based on the foregoing Findings of Fact and Conclusions of Law, the Minnesota Public Utilities Commission issues the following:

DOCUMENT NO. **54646**NOTICEA rectangular stamp with the word "COPY" in a bold, sans-serif font.

From: Joint Rolla Airport Hazard Zoning Board


To: The Public

Notice is hereby given that in the interest of public health, public safety and general welfare, the Joint Rolla Airport Hazard Zoning Board has adopted an Ordinance To Limit Height Of Objects Around Rolla Municipal Airport (Leonard Krech Field). The Ordinance applies to property located within an approximately three mile radius of the center of the intersecting runways of the Rolla Municipal Airport as of October 26, 2006. The Ordinance protects against public nuisance and injury by limiting the height of objects around the Rolla Municipal Airport to prevent hazards to airport navigation.

Copies of the Ordinance are available to the public for inspection and for copying at Rolla Municipal Airport during business hours.

Dated this 29th day of November, 2006.

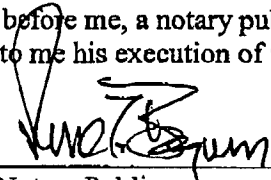
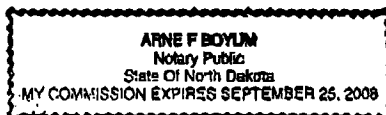
JOINT ROLLA AIRPORT HAZARD ZONING BOARD

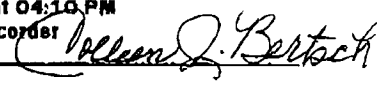

By: Gordon Krech, Chairman

State of North Dakota

County of Rolette

On this 29th day of November, 2006, before me, a notary public, personally appeared Gordon Krech, who acknowledged to me his execution of the foregoing instrument.


Notary Public
My commission expires: 9/25/08

ROLETTE COUNTY, ND Fee 50.00
I certify the within instrument was filed for record
54646 in Book 62 MISCELL _____ Page 0520-521
Recorded 12/04/2008 at 04:10 PM
COLLEEN J. BERTSCH, Recorder
By _____ Deputy 

ROLETTE COUNTY, ND Fee 50.00
I certify the within instrument was filed for record
54646 in Book 62 MISCELL _____ Page 0520
Recorded 12/04/2008 at 04:10 PM
COLLEEN J. BERTSCH, Recorder
1 of 2



Record Against:

1. All real estate located in the City of Rolla.
2. Township 162 North, Range 69 West
Sec: 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 20
Sec. 11: W1/2; W1/2NE1/4
Sec. 14: N1/2NW1/4; SW1/4NW1/4
Sec. 19: N1/2
Sec. 21: N1/2; NW1/4SW1/4
Sec. 22: N1/2
3. Township 162 North, Range 70 West
Sec: 1, 2, 12, 13
Sec. 11: E1/2
Sec. 14: NE1/4NE1/4
Sec. 24: NE1/4NE1/4
4. Township 163 North, Range 69 West
Sec. 19: S1/2
Sec. 21: S1/2
Secs. 20, 27, 28, 29, 30, 31, 32, 33
Sec. 34: S1/2
Sec. 35: W1/2; SE1/4SE1/4
- 5: Township 163 North, Range 70 West
Secs. 25; 36;
Sec. 35: E1/2
Sec. 24: SE1/4SE1/4



JOINT AIRPORT HAZARD ZONING BOARD

ORDINANCE TO LIMIT HEIGHT OF OBJECTS AROUND ROLLA
MUNICIPAL AIRPORT (Leonard Krech Field)

This ordinance restricts the height of structures and objects of natural growth, and otherwise regulates the use of property, in the vicinity of the Rolla Municipal Airport, by creating the appropriate zones and establishing the boundaries of such zones; defining certain terms used herein; referring to the Rolla Municipal Airport Zoning Map which is incorporated in and made a part of these regulations; providing for enforcement; establishing a board of adjustment; and imposing penalties.

This ordinance is proposed pursuant to the authority conferred by Chapter 2-04 of the laws of the State of North Dakota. It is hereby found that an obstruction has the potential for endangering the lives and property of users of the Rolla Municipal Airport, and property or occupants of land in its vicinity; that an obstruction may affect existing or future instrument approach minimums of the Rolla Municipal Airport, and property or occupants of land in its vicinity; and that an obstruction may reduce the size of areas available for the landing, takeoff, and maneuvering of aircraft, thus tending to destroy or impair the utility of Rolla Municipal Airport and the public investment therein. Accordingly, it is declared:

1. That the creation or establishment of an obstruction has the potential of being a public nuisance and may injure the region served by the Rolla Municipal Airport;
2. That it is necessary in the interest of the public health, public safety, and general welfare that the creation or establishment of obstructions that are a hazard to air navigation be prevented; and
3. That the prevention of these obstructions should be accomplished, to the extent legally possible, by the exercise of the police power without compensation.

It is further declared that the prevention of the creation or establishment of hazards to air navigation, the elimination, removal, alteration or mitigation of hazards to air navigation, or making and lighting of obstructions are public purposes for which a political subdivision may raise and expend public funds and acquire land or interests in land.

ARTICLE I
Short Title

This ordinance shall be known and may be cited as Rolla Municipal Airport Zoning Ordinance.

ARTICLE II
Definitions

1. AIRPORT – Means Rolla Municipal Airport.
2. AIRPORT ELEVATION – 1822 feet above mean sea level.
3. APPROACH SURFACE – A surface longitudinally centered on the extended runway centerline, extending outward and upward from the end of the primary surface and at the same slope as the approach zone height limitation slope set forth in Section IV of this Ordinance. In plan the perimeter of the approach surface coincides with the perimeter of the approach zone.
4. APPROACH, TRANSITIONAL, HORIZONTAL, AND CONICAL ZONES- These zones are set forth in Section III of this Ordinance.
5. BOARD OF ADJUSTMENT – A board consisting of 5 members appointed by the Board of Commissioners of the Rolla Municipal Airport Joint Zoning Board as provided in Chapter 2-04 of the Laws of the State of North Dakota.
6. CONICAL SURFACE – A surface extending outward and upward from the periphery of the horizontal surface at a slope of 20 to 1 for a horizontal distance of 4,000 feet.
7. HAZARD TO AIR NAVIGATION¹– An obstruction determined to have a substantial adverse effect on the safe and efficient utilization of the navigable airspace.
8. HEIGHT – For the purpose of determining the height limits in all zones set forth in this Ordinance and shown on the zoning map, the datum shall be mean seal level elevation unless otherwise specified.
9. HORIZONTAL SURFACE – A horizontal plane 150 feet above the established airport elevation, the perimeter of which in plan coincides with the perimeter of the horizontal zone.
10. LARGER THAN UTILITY RUNWAY – A runway that is constructed for and intended to be used by propeller driven aircraft of greater than 12,4=500 pounds maximum gross weight and jet powered aircraft.
11. NONCONFORMING USE – Any pre-existing structure, object of natural growth, or use of land which is inconsistent with the provisions of this ordinance or an amendment thereto.
12. NONPRECISION INSTRUMENT RUNWAY- A runway having an existing instrument approach procedure utilizing air navigation equipment, for which a

straight-in non-precision instrument approach procedure has been approved or planned.

13. **OBSTRUCTION** – Any structure, growth, or other object, including a mobile object, which exceeds a limiting height set forth in Section IV of this Ordinance.
14. **PERSON** – An individual, firm, partnership, corporation, company, association, joint stock association, or governmental entity; including a trustee, a receiver, an assignee, or a similar representation of any of them.
15. **PRIMARY SURFACE** – A surface longitudinally centered on a runway. When the runway has a specially prepared hard surface, the primary surface extends 200 feet beyond each end of that runway; when the runway has no specially prepared hard surface, or planned hard surface, the primary surface ends at each end of that runway. The width of the primary surface is set forth in Section III of this Ordinance. The elevation of any point on the primary surface is the same as the elevation or the nearest point on the runway centerline.
16. **RUNWAY** – A defined area on an airport prepared for landing and take-off or aircraft along its length.
17. **STRUCTURE** – An object, including a mobile object, constructed or installed by man, including but without limitation, buildings, towers, cranes, smokestacks, earth formation, and overhead transmission lines.
18. **TRANSITIONAL SURFACES** – These surfaces extend outward at 90 degree angles to the runway centerline and extend at a slope of seven (7) feet horizontally for each foot vertically from the sides of the primary and approach surfaces to where they intersect the horizontal and conical surfaces.
19. **TREE** – Any object of natural growth.
20. **UTILITY RUNWAY** – A runway that is constructed for and intended to be used by propeller driven aircraft of 12,500 pounds maximum gross weight and less.
21. **VISUAL RUNWAY** – A runway intended solely for the operation of aircraft using visual approach procedures.

ARTICLE III Airport Zones

In order to carry out the provisions of this Ordinance, there are hereby created and established certain zones which include all of the land lying beneath the approach

surfaces, transitional surfaces, horizontal surfaces, and conical surfaces as they apply to the Rolla Municipal Airport. Such zones are shown on the Rolla Municipal Airport Zoning Map consisting of one sheet, prepared by the Airport Engineer, which is attached to this Ordinance and made a part hereof. An area located in more than one (1) of the following zones is considered to be the only in the zone with the more restrictive height limitation. The various zones are hereby established and defined as follows:

1. Utility Runway Visual Approach Zone – The inner edge of this approach zone coincides with the width of the primary surface and is 250 feet wide. The approach zone expands outward uniformly to a width of 1,250 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
2. Utility Runway with Non-Precision Instrument Approach Zone – The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 2,000 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
3. Runway Larger Than Utility Visual Approach Zone - The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 1,500 feet at a horizontal distance of 5,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
4. Runway Larger Than Utility With A Visibility Minimum Greater Than 3/4 Mile Non-Precision Instrument Approach Zone – The inner edge of this approach zone coincides with the width of the primary surface and is 500 feet wide. The approach zone expands outward uniformly to a width of 3,500 feet at a horizontal distance of 10,000 feet from the primary surface. Its centerline is the continuation of the centerline of the runway.
5. Transitional Zones – The transitional zones are the areas beneath the transitional surfaces.
6. Horizontal Zone – The horizontal zone is established by swinging arcs of 10,000 feet radii from the center of each end of the primary surface of each runway and connecting the adjacent arcs by drawing lines tangent to those arcs. The horizontal zone does not include the approach and transitional zones.
7. Conical Zone – The conical zone is established as the area that commences at the periphery of the horizontal zone and extends outward therefrom a horizontal distance of 4,000 feet.

ARTICLE IV
Airport Zone Height Limitations

Except as otherwise provided in this Ordinance, no structure shall be erected, altered, or maintained, and no tree shall be allowed to grow in any zone created by this Ordinance to a height in excess of the applicable height limit herein established for such zone. Such applicable height limitations are hereby established for each of the zones in question as follows:

1. Utility Runway Visual Approach Zone – Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
2. Utility Runway Non-Precision Instrument Approach Zone – Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
3. Runway Larger Than Utility Visual Approach Zone – Slopes twenty (20) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 5,000 feet along the extended runway centerline.
4. Runway Larger Than Utility With A Visibility Minimum Greater Than 3/4 Mile Non-Precision Instrument Approach Zone – Slopes thirty-four (34) feet outward for each foot upward beginning at the end of and at the same elevation as the primary surface and extending to a horizontal distance of 10,000 feet along the extended runway centerline.
5. Transitional Zones – Slope seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the primary surface and the approach surface, and extending to a height of 150 feet above the airport elevation which is 1822 feet above mean sea level. In addition to the foregoing, there are established height limits sloping seven (7) feet outward for each foot upward beginning at the sides of and at the same elevation as the approach surface, and extending to where they intersect the conical surface.
6. Horizontal Zone – Established at 150 feet above the airport elevation or at a height of 1972 feet above mean sea level.
7. Conical Zone – Slopes 20 feet outward for each foot upward beginning at the periphery of the horizontal zone and at 150 feet above the airport elevation and extending to a height of 350 feet above the airport elevation.

8. Excepted Height Limitations – Nothing in this Ordinance shall be construed as prohibiting the construction or maintenance of any structure, or growth of any tree to a height up to 50 feet above the surface of the land.

ARTICLE V Use Restrictions

Notwithstanding any other provisions of this Ordinance, no use may be made of land or water within any zone established by these regulations in such a manner as to create electrical interference with navigational signals or radio communications between the airport and aircraft, make it difficult for pilots to distinguish between airport lights and others, result in glare in the eyes of pilots using the airport, impair visibility in the vicinity of the airport, create bird strike hazards, or otherwise in any way endanger or interfere with the landing, takeoff, or maneuvering of aircraft intending to use the airport.

ARTICLE VI Nonconforming Uses

1. Ordinance Not Retroactive – This Ordinance shall not be construed to require the removal, lowering, or other change or alteration of any structure or tree not conforming to the regulations as of the effective date of this Ordinance, or otherwise interfere with the continuance of a nonconforming use. Nothing contained herein shall require any change in the construction, alteration, or intended use of any structure, the construction or alteration of which was begun prior to the effective date of these regulations, and is diligently prosecuted.
2. Marking and Lighting – Notwithstanding the preceding provision of this Section, the owner of any existing nonconforming structure or three is hereby required to permit installation, operation, and maintenance thereon of such markers and lights as shall be deemed necessary by the Director, Department of Public Works, to indicate to the operators of aircraft in the vicinity of the airport the presence of such airport obstruction. Such markers and lights shall be installed, operated, and maintained at the expense of the Rolla Municipal Airport.

ARTICLE VII Permits

1. Future Uses – Except as specifically provided in a, b and c hereunder, no material change shall be made in the use of land, no structure shall be erected or otherwise established, and no tree shall be planted in any zone hereby created unless a permit therefore shall have been applied for and granted. Each application for a permit shall indicate the purpose for which the permit is desired, with sufficient particularity to permit it to be determined whether the resulting use, structure or tree would conform to the regulations herein

prescribed. If such determination is in the affirmative, the permit shall be granted. No permit for a use consistent with the provisions of this Ordinance shall be granted unless a variance has been approved in accordance with Section VII, 4.

- a. In the area lying within the limits of the horizontal zone and conical zone, no permit shall be required for any tree or structure less than seventy-five feet of vertical height above the ground, except when, because of terrain, land contour, or topographic features, such tree or structure would extend above the height limits prescribed for such zones.
- b. In areas lying within the limits of the approach zones, but at a horizontal distance of not less than 4,200 feet from each end of the runway, no permit shall be required for any tree or structure less than seventy-five feet of vertical height form above the ground, except when such tree or structure would extend above the height limit prescribed for such approach zones.
- c. In the areas lying within the limits of the transition zones beyond the perimeter of the horizontal zone, no permit shall be required for any tree or structure less than seventy-five feet of the vertical height above ground, except when such tree or structure, because of terrain, land contour, or topographical features, would extend above the height limit prescribed for such transition zones.

Nothing contained in any of the foregoing exceptions shall be construed as permitting or intending to permit any construction, or alteration of any structure, or growth of any tree in excess of any of the height limits established by this Ordinance except as set forth in Section IV, 5.

2. Existing Uses – No permit shall be granted that would allow the establishment or creation of an obstruction or permit a nonconforming use, structure, or tree to become a greater hazard to air navigation than it was on the effective date of this Ordinance or any amendments thereto or than it is when the application for a permit is made. Except as indicated, all applications for such a permit shall be granted.
3. Nonconforming Uses Abandoned or Destroyed – Whenever the Director, Department of Public Works, determines that a nonconforming tree or structure has been abandoned or more than 80 percent torn down, physically deteriorated, or decayed, no permit shall be granted that would allow such a structure or tree to exceed the applicable height limit or otherwise deviate from the zoning Ordinance.
4. Variances – Any person desiring to erect or increase the height of any structure, or permit the growth of any tree or use property, not in accordance

with this Ordinance may apply to the Board of Adjustment for a variance. The application for variance shall be accompanied by a determination from the Federal Aviation Administration as to the effect of the proposal on the operation of air navigation facilities ~~and the safe, efficient use of navigable airspace~~. Such variances shall be allowed where it is duly found that a literal application or enforcement of the Ordinance will result in unnecessary hardship and relief granted, will not be contrary to the public interest, will not create a hazard to air navigation, will do substantial justice, and will be in accordance with the spirit of these regulations. Additionally, no application for variance to the requirements of this Ordinance may be considered by the Board of Adjustment unless a copy of the application has been furnished to the Rolla Municipal Airport Authority for advice as to the aeronautical effects of the variance. If the Rolla Municipal Airport Authority does not respond to the application within 15 days after receipt, the Board of Adjustment may act on its own to grant or deny said application.

5. Obstructing Marking and Lighting – Any permit or variance granted may, if such action is deemed advisable to effectuate the purpose of this Ordinance and be reasonable in the circumstances, be so conditioned as to require the owner of the structure or tree in question to install, operate, and maintain, at the owner's expense, such markings and lights as may be necessary. If deemed proper by the Board of Adjustment, this condition may be modified to require the owner to permit the Rolla Municipal Airport, at its own expense, to install, operate and maintain the necessary markings and lights.

ARTICLE VIII

Enforcement

It shall be the duty of the Director of the Rolla Municipal Airport Joint Zoning Board, to administer and enforce the Ordinance prescribed herein. Applications for permits and variances shall be made to the Director of the Rolla Municipal Airport Joint Zoning Board, upon a form published for that purpose. Applications required by these regulations to be submitted to the Director of the Rolla Municipal Airport Joint Zoning board, shall be promptly considered and granted or denied. Application for action by the Board of Adjustment shall be forthwith transmitted by the Director of the Rolla Municipal Airport Joint Zoning Board.

ARTICLE IX

Board of Adjustment

1. There is hereby created a Board of Adjustment to have and exercise the following powers: (1) to hear and decide appeals from any order, requirement, decisions, or determination made by the Director of the Rolla Municipal Airport Joint Zoning Board, in the enforcement of this Ordinance (2) to hear and decide special exceptions to the terms of this Ordinance upon

which such Board of Adjustment under such regulations may be required to pass; and (3) to hear and decide specific variances.

2. The Board of Adjustment shall consist of five (5) members appointed by the Rolla Municipal Airport Joint Zoning Board and each shall serve for a term of three years or until a successor is duly appointed and qualified. Of the members first appointed, one shall be appointed for a term of one year, one for a term of two years, and one for a term of three years. Members shall be removable by the appointing authority for cause, upon written charges, after a public hearing.
3. The Board of Adjustment shall adopt rules for its governance and in harmony with the provisions of this Ordinance. Meetings of the Board of Adjustment shall be held at the call of the Chairperson and at such other times as the Board of Adjustment may determine. The Chairperson or, in the absence of the Chairperson, the Acting Chairperson may administer oaths and compel the attendance of witnesses. All hearings of the Board of Adjustment shall be public. The Board of Adjustment shall keep minutes of its proceedings showing the vote of each member upon each question; or if absent or failing to vote, indicating such fact, and shall keep records of its examinations and other official action, all of which shall immediately be filed in the office of the County Clerk and on due cause shown.
4. The Board of Adjustment shall make written findings of facts and conclusions of law giving the facts upon which it acted and its legal conclusions from such facts in reversing, affirming, or modifying any order, requirement, decision, or determination which comes before it under the provisions of these regulations.
5. The concurring vote of a majority of the members of the Board of Adjustment shall be sufficient to reverse any order, requirement, decision, or determination of the Director of the Rolla Municipal Airport Joint Zoning Board, or to decide in favor of the applicant on any matter upon which it is required to pass under these regulations, or to effect variation to these regulations.

ARTICLE X

Appeals

1. Any person aggrieved, or any taxpayer affected, by the decision of the Director of the Rolla Municipal Airport Joint Zoning Board, made in the administration of this Ordinance may appeal to the Board of Adjustment.
2. All appeals hereunder must be taken within a reasonable time as provided by the rules of the Board of Adjustment, by filing with the Director of the Rolla Municipal Airport Joint Zoning Board, a notice of appeal specifying the grounds thereof. The Director of the Rolla Municipal Airport Joint Zoning

Board, shall forthwith transmit to the Board of Adjustment all the papers constituting the record upon which the action appealed from was taken.

3. Any appeal ~~shall stay all proceedings in furtherance of~~ the action appealed from unless the Director of the Rolla Municipal Airport Joint Zoning Board, certifies to the Board of Adjustment, after the notice of appeal has been filed with it, that by reason of the facts stated in the certificate a stay would in the opinion of the Director of the Rolla Municipal Airport Joint Zoning Board, cause imminent peril to life or property. In such case, proceedings shall not be stayed except by order of the Board of Adjustment or notice to the Director of the Rolla Municipal Airport Joint Zoning Board, and on due cause shown.
4. The Board of Adjustment shall fix a reasonable time for hearing appeals, give public notice and due notice to the parties in interest, and decide the same within reasonable time. Upon the hearing, any party may appear in person or by agent or by attorney.
5. The Board of Adjustment may, in conformity with the provisions of these regulations, reverse or affirm, in whole or in part, or modify the order, requirement, decisions, or determination appealed from and may make such order, requirement, decision, or determination as may be appropriate under the circumstances.

ARTICLE XI Judicial Review

Any person aggrieved, or any taxpayer affected, by any decision of the Board of Adjustment, may appeal as provided in Chapter 2-04 of the laws of the State of North Dakota.

ARTICLE XII Penalties

Each violation of this Ordinance or of any regulation, order or ruling promulgated hereunder shall constitute a misdemeanor and be punishable by a fine of not more than \$1,000.00 or imprisonment for not more than 30 days or both; and each day a violation continues to exist shall constitute a separate offense.

ARTICLE XIII Severability

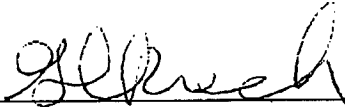
If any of the provisions of this Ordinance or the application thereof to any person or circumstances are held invalid, such invalidity shall not affect other provisions or applications of this Ordinance which can be given effect without the invalid provision or application, and to this end, the provisions of this Ordinance are declared to be severable.

ARTICLE XIV

Effective Date

WHEREAS, the immediate operation of the provisions of this Ordinance is necessary for the preservation of the public health, public safety, and general welfare, an EMERGENCY is hereby declared to exist and this Ordinance shall be in full force and effect from and after its passage by the Joint Airport Hazard Zoning Board this 26th day of October, 2006.

JOINT AIRPORT HAZARD ZONING BOARD


Gordon Krech, Chairman

The Joint Airport Hazard Zoning Board acted on the foregoing Ordinance on October 26, 2006, as follows:

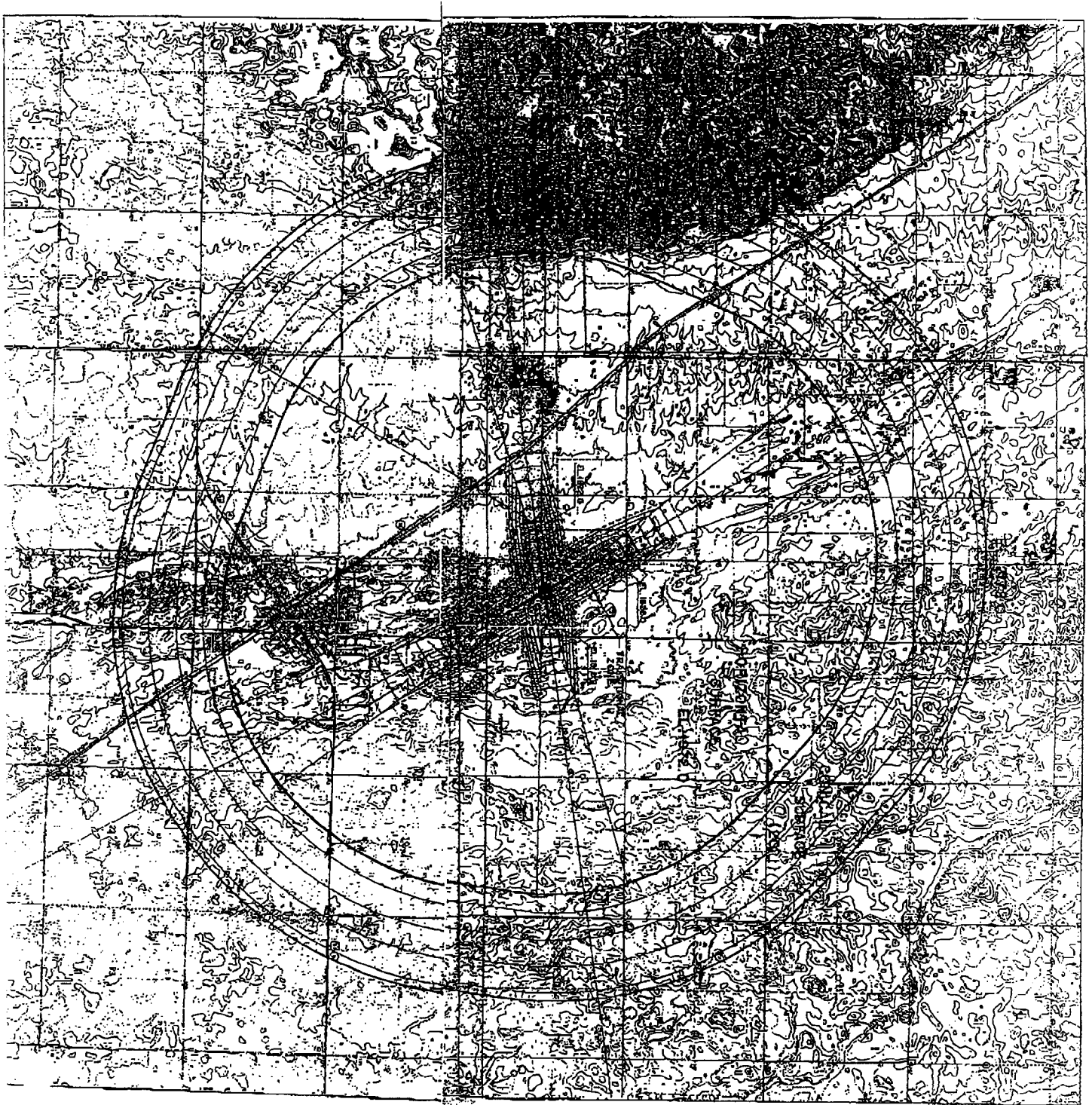
Adoption moved by Paul Munro

Seconded by Joe Baker

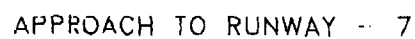
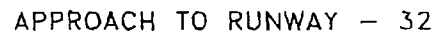
Aye: Munro, Joe Baker, Krech, Boucher

Nay: None

Absent: Berg, Grant, Jim Baker



—●— N



Rev'd.		SHEET NO.
ROLLA MUNICIPAL AIRPORT		A-3
ROLLA AIRPORT AUTHORITY		
ROLLA, NORTH DAKOTA		
Kadrmias	ZONING	
Lee &	MAP	
Jackson		

JOINT ROLLA AIRPORT HAZARD ZONING BOARD

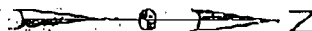
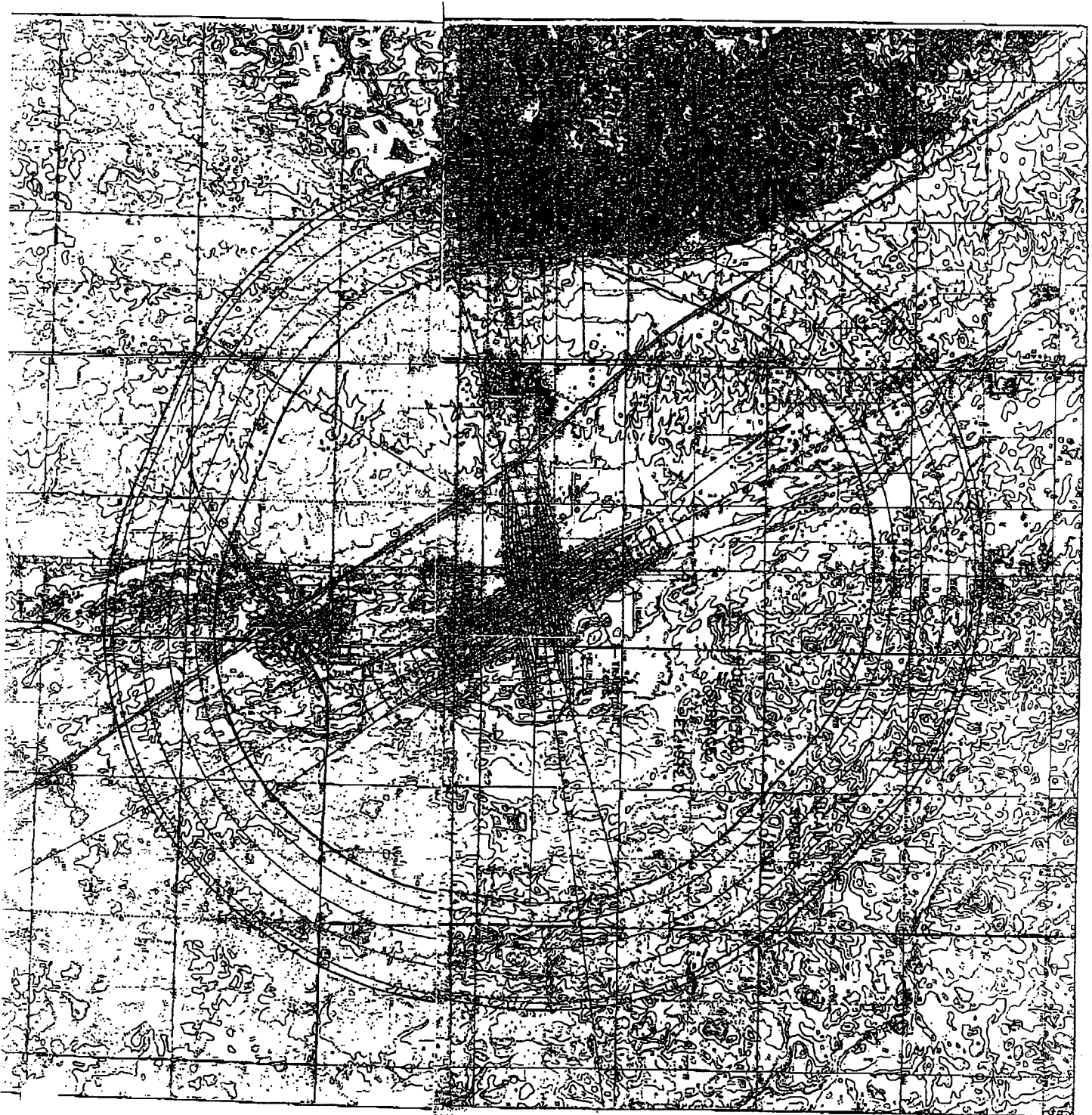
The following described real estate is subject to the
Rolla Airport Hazard Zoning Ordinance

1. All real estate located in the City of Rolla.
 2. Township 162 North, Range 69 West Mr. Pleasant Township
Sec: 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 16, 17, 18, 20
Sec. 11: W1/2; W1/2NE1/4
Sec. 14: N1/2NW1/4; SW1/4NW1/4
Sec. 19: N1/2
Sec. 21: N1/2; NW1/4SW1/4
Sec. 22: N1/2
 3. Township 162 North, Range 70 West Couture Township
Sec: 1, 2, 12, 13
Sec. 11: E1/2
Sec. 14: NE1/4NE1/4
Sec. 24: NE1/4NE1/4
 4. Township 163 North, Range 69 West Fairview Township
Sec. 19: S1/2
Sec. 21: S1/2
Sec. 20, 27, 28, 29, 30, 31, 32, 33
Sec. 34: S1/2
Sec. 35: W1/2; SE1/4SE1/4
 5. Township 163 North, Range 70 West Baxter Township
Sec. 25; 36;
Sec. 35: E1/2
Sec. 24: SE1/4SE1/4
- Don't rely solely on the above legal descriptions. The controlling document is the map of the governed zones on file at the Rolla Airport. A reduced copy of the map is attached to the Ordinance.

ROLLA AIRPORT ZONING BOARD 10/26/06

AIRPORT ZONES - OUTER BOUNDARY

HEIGHT RESTRICTIONS PERMIT REQUIRED



Rolette County Auditor's Office
PO Box 939, 102 2nd St NE
Rolla ND 58367
Phone 701-477-5665/Fax 701-477-6339

Fax Transmittal Sheet

Date: 10-5-07

To: Rob Bonta.

Fax #: 952-937-5822

Comments: Rolla Airport Hazard Zoning Ordinance Notice

Table of Contents

Preamble

Article 1 Introduction

Section 1 Title-----	3
Section 2 Purpose-----	3
Section 3 Repeal-----	3
Section 4 Authority-----	3
Section 5 Severability-----	3
Section 6 Effective Date-----	3

Article 2 General Provisions

Section 1 Jurisdiction-----	3
Section 2 Compliance-----	3
Section 3 Agriculture Exempted-----	3
Section 4 Interpretation-----	3
Section 5 Nonconforming Uses-----	3
Section 6 Utilities-----	4
Section 7 Mineral Exploration and Production-----	4
Section 8 Sanitary Regulations-----	4
Section 9 Waste Disposal Sites-----	5
Section 10 Sign Regulations-----	5
Section 11 Subdivision Regulations-----	6
Section 12 Wind Generation Facilities and Towers-----	7
Section 13 Animal Feeding Operations-----	7

Article 3 Districts and Boundaries

Section 1 Establishment of Districts-----	37
Section 2 Zoning Map-----	37
Section 3 Interpretation of Boundaries-----	37
Section 4 Agricultural District-----	37
Section 5 Rural Residential District-----	39
Section 6 Commercial District-----	39
Section 7 Industrial District-----	41
Section 8 Rural Recreational District-----	41

Article 4 Administration and Enforcement

Section 1 Planning Commission-----	43
Section 2 Board of Zoning Appeals-----	44
Section 3 Building Permits-----	44
Section 4 Conditional Use Permits-----	45
Section 5 Variance Permits-----	46
Section 6 Amendments-----	47
Section 7 Certificate of Compliance-----	47
Section 8 Schedule of Fees and Charges-----	48
Section 9 Penalties-----	48

Article 5 Definitions

Section 1 Rules-----	49
Section 2 Definitions-----	49

Official Zoning Maps

**PREAMBLE
AND ORDINANCE ESTABLISHING
COMPREHENSIVE ZONING REGULATIONS
FOR
TOWNER COUNTY**

The intent is to:

Promote the health, safety, moral and general welfare of the county residents and the orderly Development of lands within the county;

Preserve and maintain agricultural lands for farm use;

Encourage nonfarm growth to locate within existing communities or within the immediate environs of communities;

Promote a healthy and visually attractive environment;

Promote the development of utility corridors, which utilize the least productive agricultural land;

Discourage development, which places an excessive financial burden on County government.

THESE REGULATIONS ARE HEREBY ADOPTED EFFECTIVE THIS _____ DAY OF _____, 2005.

Towner County, North Dakota:

By:
Chairman of Towner County Board of Commissioners

By: Verna M Martz
Auditor for Towner County, North Dakota

ZONING REGULATIONS TOWNER COUNTY, NORTH DAKOTA

ARTICLE 1 - INTRODUCTION

SECTION 1. TITLE: This resolution shall be known, cited, and referred to as the "Zoning Regulations of Towner County, North Dakota".

SECTION 2. PURPOSE: These regulations are designed to promote the health, safety, public convenience, general prosperity, and public welfare of Towner County.

SECTION 3. REPEAL: All other zoning regulations and amendments thereto previously adopted under the authority of Chapter 11-33 of the North Dakota Century Code.

SECTION 4. AUTHORITY: These regulations are adopted under the authority granted by Chapter 11-33 of the North Dakota Century Code.

SECTION 5. SEVERABILITY: Should any section or provision of these regulations be declared by the courts to be unconstitutional or invalid, such decision shall not affect the validity of the regulations as a whole, or any part thereof other than the part so declared to be unconstitutional or invalid.

SECTION 6. EFFECTIVE DATE: These regulations shall be in full force and effective from and after the passage and approval.

ARTICLE 2 - GENERAL PROVISIONS

SECTION 1. JURISDICTION: These zoning regulations shall apply to all areas within the civil boundaries of Towner County, North Dakota; with the exception of those areas within the civil boundaries and extraterritorial zoning boundaries of organized cities in Towner County and those townships that have elected to have their own zoning. Those areas will retain the opportunity to exercise their own zoning authority.

SECTION 2. COMPLIANCE: Except hereinafter provided, no building structures or land shall be used, occupied, erected, constructed, moved, reconstructed, or structurally altered except in conformity with all the regulations for the district in which it is located.

SECTION 3. AGRICULTURE EXEMPTED: Nothing in this ordinance shall be applied for the purpose of preventing or restricting the use of land or buildings for farming or ranching or any of the normal incidents of farming or ranching (e.g., 58-03-11(2)(a) N.D.C.C.).

SECTION 4. INTERPRETATION: In the interpretation and applications of these regulations, these provisions shall be held to be the minimum requirements adopted for the promotion of the public health, safety, and welfare. Where these regulations impose a greater restriction on land, buildings, or structures than is imposed or required by existing provisions of law, ordinance, contract, deed, or resolution, the provisions of these regulations shall control.

SECTION 5. NONCONFORMING USES:

- A. Lawful nonconforming uses of land or buildings existing at the date of adoption of these regulations may continue, provided no structural alteration, except for normal maintenance, are made and such nonconforming uses shall not be extended to occupy a greater area of land than occupied at the date of adoption of these regulations.
- B. No building or structure where a nonconforming use has been discontinued for a period of two years or has changed to a permitted use shall again be devoted to a nonconforming use.

- C. A nonconforming structure destroyed or damaged less than fifty percent of its fair market value may be reconstructed within one year of such casualty. If damaged more than fifty percent of its fair market value, such building shall be constructed in conformance with these regulations.
- D. The provisions of this section shall not be applicable to conditional uses or any made nonconforming by a change or amendment in district regulations.

SECTION 6. UTILITIES:

- A. All new utilities shall be considered as a conditional use and, as such, shall conform to all Requirements put on them by the Planning Commissioner and/or County Commission.
- B. No conditional use permit shall be issued unless satisfactory provisions for the following have been made:
 - 1. Underground utilities shall be placed a minimum depth of four (4) feet, so as not to constitute a hazard to normal farming or general county/township maintenance.
 - 2. Above ground utilities shall be placed in a manner which will conform with state law.
 - 3. Utility placement shall conform with section lines, highway (state and federal), and railroad right of ways.
 - 4. The activities will not result in undue damage or injury to roads, bridges, right of ways in the County, or to any public or private property.
 - 5. Excavation costs for purposes of construction or maintenance of a utility shall be borne by the contractor or owner of said utility.

SECTION 7. MINERAL EXPLORATION AND MINERAL PRODUCTION:

- A. All permanent mineral production activities shall be considered as a conditional use and, as such, shall conform to all requirements put on them by the Planning Commission and/or County Commission.
- B. No conditional use permit shall be issued unless satisfactory provision for the following has been made:
 - 1. The activities will not result in undue damage or injury to roads, bridges, right of ways in the County, or to any public or private property.
 - 2. Evidence of a reclamation agreement with the surface owner.
 - a. Reclamation of project shall be finished within one (1) year of the completion of the mineral exploration and/or production activities.
 - 3. Evidence of compliance with the County, State, and Federal regulations.
 - 4. Evidence that the activity is one hundred (150) feet from all section lines, property lines, water resources and the centerlines of all townships, county, state and federal roads.

SECTION 8. SANITARY REGULATIONS: All residential, commercial, or industrial structures shall conform to the North Dakota health regulations as they refer to wells irrigation, septic, and sanitary systems.

SECTION 9. WASTE DISPOSAL SITES:

- A. At a minimum the following waste disposal sites shall comply with all applicable federal, state and county regulations outlined in the Towner County Solid Waste Zoning Ordinance.
- B. Private Waste Disposal Sites – A solid waste disposal site used exclusively by and only for the landowner or tenant engaged in farming. Sites shall be limited to one per landowner and used for refuse generated from personal farming operations. In addition these sites must comply with federal (e.g., Farm Service Agency) and state regulations.
- C. Commercial Waste Disposal Sites - solid waste disposal site or facility permitted pursuant to the laws of the State of North Dakota. Waste transported to a disposal site shall be by a waste hauler licensed by the State of North Dakota.

SECTION 10. SIGN REGULATIONS: Signs shall be permitted if they conform to the regulations in this article.

- A. Permitted signs – The following signs shall be permitted in all zoning districts:
 - 1. Signs not exceeding two square feet in area bearing property numbers, box numbers, or names of occupants of the premises.
 - 2. Flags and the insignia of any government.
 - 3. Legal notices, identification information, or directional signs erected by government bodies.
 - 4. Signs directing and guiding traffic or parking on private property.
 - 5. No more than one sign advertising property for sale or rent
 - 6. Bulletin boards and signs for churches or other public institutions.
- B. Limited Permitted Signs – The following signs shall be permitted in only the "CO" and the "IN" zoning districts:
 - 1. Illuminated signs
 - 2. Marquee signs
 - 3. Portable signs
 - 4. Projecting signs
 - 5. Roof signs
 - 6. Wall signs
 - 7. Temporary signs
 - 8. Commercial billboards
- C. Unlawful Signs – The following types of signs are prohibited from all zoning districts:
 - 1. Any sign, outdoor commercial advertising or lighting device such as a beacon light, constituting a nuisance because of lighting glare, focus, animation, or flashing.
 - 2. Any sign which conflicts in any manner with the clear and obvious appearance of public signs and devices controlling traffic.

3. Any sign projecting more than ten feet over a road, street, alley, or other public space, or closer than two feet to the curb line of any public road, street, or alley, or less than nine feet above any road, street, alley, or public space.
4. Any sign that obstructs a view of oncoming traffic.

SECTION 11. SUBDIVISION REQUIREMENTS: Subdivision regulations are established to safeguard the public interest in accordance with the County's comprehensive plan and to assist the sub divider in harmonizing their interest with those of the County.

- A. The tract to be used for the subdivision shall not be less than five acres in area.
- B. The applicant for a zoning change to permit a subdivision, must satisfy the Planning Commission that all development to occur within this District shall not extensively alter the natural grade of land or permit extensive alteration, removal, or destruction of natural vegetation in order to prevent erosion or pollution.
- C. The applicant for a platting of a subdivision must meet all State Health Department standards prior to any development on the land.
- D. The applicant platting the subdivision shall prepare or cause to be prepared an application for rezoning and a development plan, and shall present three copies of the plan for review and approval by the Planning Commission. The development plan shall show topography at a minimum of ten feet intervals, such as shown on a 7 ½ minute quadrangle map and include designation of the following:
 1. Lot dimensions
 - a) In the Rural Recreational District, all lots, except recreational vehicle park spaces, shall have a minimum area of 15,000 square feet. Additional lot area may be required to meet the state Health Department minimum standards for public health and safety. Minimum lot width shall not be less than 100 feet and depth of not less than 150 feet. The principal and accessory structures shall not cover more than 30% of the lot area.
 - b) In the Rural Residential and Commercial Districts, for size shall not be less than 5,000 square feet, if served by a sewer collection system common to other adjoining users, or not less than three acres if the sewer is drained into an on site user owned drainage field.
 2. Recreational vehicle park and sites, if applicable
 - a) Recreational vehicle park spaces shall have a maximum density of 12 spaces per gross acre with a minimum area of 2,500 square feet for each space where State approved public type sanitary sewers are available for each space. When State approved public type sanitary sewers are not available, the maximum density of 12 spaces per gross acre with a minimum area of 2,500 square feet for each space, provided that toilet, shower, and laundry facilities are included (for recreational vehicle occupants' exclusive use) in calculation of gross area and are provided within 250 feet of each space. Each space shall be at least 35 feet wide and clearly defined.
 3. Recreational vehicle park service buildings, if applicable.
 4. Water lines, if applicable to development.
 5. Water outlets, if applicable to development (mandatory for recreational vehicle park)
 6. Sewer lines, if applicable to development.

7. Recreational vehicle hold tanks, if applicable.
 8. Recreational areas.
 9. Landscaped areas and walls or fences.
 10. Roadways.
- E. The approval of the application for rezoning and the development plan in no way obligates the County to the provision, development or maintenance of access, required or otherwise, to the property concerned.
 - F. Roadways shall not be less than 30 feet in width for two-way traffic systems and 16 feet for one-way traffic systems.
 - G. Upon approval of the preliminary development plan by the Planning Commission, the applicant shall prepare or cause to be prepared a final development plan, which shall incorporate any changes or alterations requested. The final development plan and the Planning Commission recommendation shall be forwarded to the Governing Body for review and final action.

SECTION 12. WIND POWER GENERATION FACILITIES AND TOWERS

- A. Towers and all related equipment shall be in compliance with all applicable Local, State and Federal regulatory standards.
- B. The tower shall be setback as follows: From
 1. Occupied residence – 750 feet
 2. Property line – 200 feet
 3. Road Right of Way – 300 feet

Setbacks shall be increased to the tower fall zone if it is greater than any of the above.
- C. Noise shall be limited to a maximum level of 50dB(A) at the nearest property line.
- D. Tower shall be of a monopole type (self-supporting, tubular) and shall be no more than 300 feet in height. Except for towers supporting generation units with a rated capacity of less than 40 Kilowatts.
- E. Rotor blades shall not exceed 500 feet from the ground.
- F. Facility shall have a rating of 5,000 Kilowatts or less.
- G. No lighting shall be permitted other than that required by Federal requirements.
- H. All connecting power lines shall be buried underground. Tower and facilities shall be designed to minimize their visual impact.

SECTION 13. ANIMAL FEEDING OPERATIONS:

- A. Definitions: Terms used in this ordinance have the same meaning as given by the laws and rules of the state of North Dakota, specifically chapter 33-16-03 of the North Dakota Administrative Code. The definitions for these terms and additional terms are:
 1. "Animal feeding operation" means a place where livestock have been, are, or will be confined, concentrated and fed for 45 days in any 12 month period, pasture, crops, or other vegetation are not normally managed or sustained for grazing during the normal growing season; and,

animal waste or manure accumulates. This term does not include an animal wintering operation. Adjoining animal feeding operations under common ownership are considered to be one animal feeding operation, if they use common areas or system for manure handling.

2. "Animal wintering operation" means the confinement of cattle or sheep used or kept for breeding purposes in a feedlot or sheltered area at any time between October 15 and May 15 of each production cycle under circumstances in which these animals do not obtain a majority of their feed and nutrients from grazing. The term includes the weaned offspring of cattle and sheep, but it does not include (1) breeding operations of more than 1000 animal units or (2) weaned offspring which are kept longer than 120 days and that are not retained for breeding purposes.
3. "Bedding material" means an absorbent substance applied to dirt or concrete flooring systems, including wood shavings, wood chips, sawdust, shredded paper, cardboard, hay, straw, hulls, sand, and other similar, locally available materials.
4. "Best management practices" means schedules of activities, prohibitions of practices, conservation practices, maintenance procedures, and other management strategies to prevent or reduce the pollution of waters of the state. Best management practices also include treatment requirements, operating procedures, and practices to control production area and land application area runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.
5. "Concentrated animal feeding operation" means an animal feeding operation that is defined as a large concentrated animal feeding operation (Definition 11) or as a medium concentrated animal feeding operation (Definition 18), or is a small or other type of animal feeding operation designated as a concentrated animal feeding operation in accordance with North Dakota Administrative Code Chapter 33-16-03.1-04 (Designation of concentrated animal feeding operations). For purposes of determining animal numbers, two or more feeding operations under common ownership are considered to be a single animal feeding operation if they adjoin each other or if they use a common area or system for the disposal of wastes.
6. "Discharge of a pollutant" and "discharge of pollutants" each means any addition of any pollutant to the waters of the state from any source, including the disposal of pollutants into wells.
7. "Department" means the North Dakota Department of Health.
8. "Earthen storage pond or pond" means an earthen pond used to store manure, process wastewater and runoff from the production area of a livestock facility.
9. "Engineer" means a professional engineer registered to practice in the state of North Dakota.
10. "Facility or livestock facility" has the same meaning as animal feeding operation (Definition 1) or concentrated animal feeding operation (Definition 5).
11. "Large concentrated animal feeding operation" means any animal feeding operation that stables or confines an animal unit capacity of 1,000 or more animal units. For livestock numbers see equivalent animal numbers.
12. "Litter" means a mixture of fecal material, urine, animal bedding material, and sometimes waste feed.
13. "Manure or livestock manure" means fecal material and urine, animal-housing wash water, bedding material, litter, compost, rainwater, or snow melt that comes in contact with fecal material and urine, and raw or other materials commingled with fecal material and urine or set aside for disposal.

14. "Manure handling system" means all of the water pollution control structures used at the production area of a livestock facility.
15. "Manure storage pond" means an earthen storage pond that stores liquid manure and process wastewater from indoor confined animal feeding operations.
16. "Manure storage structure" means any water pollution control structure used to contain or store manure or process wastewater. It includes, but is not limited to: earthen manure storage ponds; runoff ponds; concrete, metal, plastic, or other tanks; and stacking facilities.
17. "Medium animal feeding operation" means any animal feeding operation that stables or confines an animal unit capacity between 300 and 999 animal units. For livestock numbers see equivalent animal numbers.
18. "Medium concentrated animal feeding operation" means a medium animal feeding operation that meets either one of the following conditions:
 - a. Pollutants are discharged into waters of the state through a man-made ditch, flushing system, or other similar man-made device; or
 - b. Pollutants are discharged directly into waters of the state which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.
19. "Nuisance" means any Concentrated Animal Feeding Operation which allows or permits offensive or unhealthful odors or effluent to emanate there from, which such odors or effluent substantially impair the use, enjoyment, or value of any property. The spraying, spreading or application of any such waste or effluent from any such operation within the county is likewise declared to be a nuisance.
20. "Nutrient management plan" means a written description of the equipment, method(s) and schedule(s) by which (1) manure, litter and process wastewater is beneficially reused in an environmentally safe manner such as being applied to land at appropriate agronomic rates as nutrients or fertilizers, and (2) water pollution and air pollution (including odors) are controlled sufficiently to protect the environment and public health.
21. "Open lot" means livestock pens, feeding or holding areas at the production area of an animal feeding operation which are outside and not under roof, and where rain can fall directly on the lot area.
22. "Open manure storage structure" means an earthen pond or storage tank for holding liquid manure which is not covered so rainfall can fall directly into the pond or tank.
23. "Operation and maintenance plan" means a written description of the equipment, methods, and schedules for: (1) inspection, monitoring, operation, and maintenance of the animal feeding operation (manure storage structures, water pollution control structures, and the production area); and (2) controlling water pollution and air pollution (including odors) sufficient to protect the environment and public health. It includes emergency response actions for spills, discharges or failure of a collection, storage, treatment, or transfer component.
24. "Operator" means an individual or group of individuals, partnership, corporation, joint venture, or any other entity owning or controlling, in whole or in part, one or more animal feeding operations.

25. "Overflow" means the discharge of manure or process wastewater resulting from the filling of wastewater or manure storage structures beyond the point at which no more manure, process wastewater, or storm water can be contained by the structure.
26. "Pollutant" means "wastes" as defined in subsection 2 of North Dakota Century Code Section 61-28-02, including dredged soil, solid waste, incinerator residue, garbage, sewage, sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discharged equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharge into water.
27. "Process wastewater" means water directly or indirectly used in the operation of the animal feeding operation for any or all of the following: spillage or overflow from animal or poultry watering systems; washing, cleaning, or flushing pens, barns, manure pits, or other animal feeding operation facilities; direct contact swimming, washing, or spray cooling of animals; or dust control. Process wastewater also includes any water which comes into contact with any raw materials, products, or byproducts, including manure, litter, feed, milk, eggs, or bedding material.
28. "Production area" means those areas of an animal feeding operation used for animal confinement, manure storage, raw materials storage, and waste containment. The animal confinement area includes, but is not limited to, open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milking rooms, milking centers, cattle yards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under-house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes, but is not limited to, feed silos, silage bunkers, and bedding materials. The waste containment area includes, but is not limited to, settling basins, area within berms, and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility and any area used in the storage, handling, treatment, or disposal of mortalities.
29. Risk Classification. The environmental risk posed by the use of surface impoundments and land application for the treatment and disposal of wastes and wastewaters may be classified as follows:
- a. High risk environments.
 - 1) Surface water with sandy soil, high risk environment based on close proximity (less than one (1) mile) to alluvial terrace deposits, sand dunes, and other highly permeable subsurface environments.
 - 2) Large watershed. High risk environment based on high volume storm water runoff potential based on surface topography, proximity to streams and creeks, erosion potential, and size of watershed up gradient from disposal area, especially if downstream users of surface water for private and/or public drinking water supply and agricultural water supply.
 - 3) Unconfined aquifer, shallow, private/public water supply, high risk environment based on shallow depth to groundwater that is or could be locally used for private and/or public drinking water.
 - 4) Health/Property. High risk environment based on less than one (1) mile proximity to existing neighboring business, residences, agricultural work areas, or other highly used structure, public or private, that would be adversely impacted by air or water pollutants generated by the facility, including but not limited to chemicals, sulfur compounds, nitrogen compounds, dusts, pollens, airborne disease, and malodorous odors.
 - b. Moderate risk environments.
 - 1) Surface water, moderate risk environment based on distance to nearest intermittent stream less than two (2) miles and greater than required setbacks.

- 2) Unconfined aquifer, deep, private/public water supply. Moderate risk environment based on deep groundwater that is or could be locally used for public and/or private drinking water and can be considered to be a sole source aquifer.
 - 3) ~~Unconfined aquifer, shallow, other use.~~ Moderate risk environment based on shallow depth to groundwater that is or could be locally used only for agricultural purposes and where a deeper groundwater is available and has been or could be used for private and/or public drinking water.
 - 4) Health/Property. Moderate risk environment based on less than three (3) miles proximity to existing neighboring business, residences, agricultural work areas, or other highly used structure, public or private, that could be adversely impacted by air or water pollutants generated by the facility, including but not limited to chemicals, sulfur compounds, nitrogen compounds, dusts, pollens, airborne disease, and malodorous odors.
 - c. Other. Other environmental or public health risk not otherwise classified may be identified by the county and used to determine appropriate siting and waste management requirements.
30. "Runoff" means rainwater or snow melt that comes in contact with manure at an open lot or open manure storage area and, therefore, is defined as manure.
 31. "Runoff pond" means an earthen storage pond that is used to collect and store runoff from an open lot or from a manure storage area.
 32. "Sensitive groundwater area" means vulnerable hydro geologic settings as determined by the department such as glacial outwash deposits or alluvial or aeolian sand deposits that are critical to protecting current or future underground sources of drinking water. Areas designated as sensitive groundwater areas by the department include alluvial or aeolian sand deposits shown on Geologic Map of North Dakota (Clayton, 1980, North Dakota geological survey) and glacial drift aquifers listed in North Dakota Geographic Targeting System and Groundwater Monitoring (Radig, 1997, North Dakota department of health), or most recent editions of these publications, with DRASTIC scores greater than or equal to 100 based on methodology described in DRASTIC: A Standardized System For Evaluating Groundwater Pollution Potential (Aller et al, 1987, United States environmental protection agency).
 33. "Small animal feeding operation" means any animal feeding operation that stables or confines less than the numbers of animals specified for a medium animal feeding operation (Definition 17).
 34. "Small concentrated animal feeding operation" means any animal feeding operation that stables or confines less than the number of animals specified for a medium animal feeding operation (Definition 17) and is designated as a CAFO in accordance with North Dakota Administrative Code 33-16-03.1-04.
 35. Surface Impoundment Classifications. Surface impoundments associated with animal waste feeding operation wastewater treatment systems are classified according to the system configuration as follows:
 - a) Total Retention. Total retention surface impoundments are impoundments designed and constructed without an outfall structure (e.g., no discharge pipe, trench, or spillway). Surface impoundments are assumed to have the potential to discharge to groundwaters of the state by leakage and seepage at rates not to exceed those specified by the state.
 - b) Flow Through. Flow-through surface impoundments are impoundments designed and constructed with an outfall structure, which allows the controlled discharge of wastes to surface waters of the state (e.g., discharge pipe, trench or spillway). Surface impoundments are assumed to have the potential to discharge to groundwaters of the state by leakage and seepage at rates not to exceed those specified by the state.
 - c) Cells. Surface impoundments may be divided into several smaller divisions called cells which share a common wall. Cells that receive flow in series can be considered either one total impoundment or several individual impoundments depending on the complexity of the waste, the production of sludge's, wastes or other concerns, and the type of treatment used.

- d) Treatment trains. Treatment trains are multiple surface impoundments or one impoundment with more than one cell in series whereby each impoundment or cell is used for a particular treatment method designed to reduce the concentration or toxicity of pollutants of concern.
 - e) Other configurations. Other configurations will be classified by County Commissioners on a case-by-case basis.
36. "Surface water" means waters of the state that are located on the ground surface, including all streams, lakes, ponds, impounding reservoirs, marshes, watercourses, waterways, and all other bodies or accumulations of water on the surface on the earth, natural or artificial, public or private.
37. "Unconfined glacial drift aquifer" means a glacial drift aquifer that does not have an impervious soil layer which acts to prevent or minimize movement of water into, through, or out of the aquifer.
38. Waste Classification. Wastes and wastewaters are classified as follows:
- a) Class I: Wastes and wastewaters, including storm water, contained or suspecting to contain pollutants at concentrations and volumes which could be deleterious to humans, aquatic life, wildlife, or the beneficial use of the environment if discharged to ground and/or surface water and are generated by a batch or continuous process. Examples include but are not limited to, mobile metals, dissolved salts (>2000ppm), soluble hydrocarbons, nitrogen compounds (>500 ppm), biochemical oxygen demand (BOD) (>1000 ppm), or pH (<4 or >9) or most wet manure systems.
 - b) Class II: Wastes and wastewater, including storm water, containing pollutants listed in Class I but at either significantly less concentration or significantly less volume and/or containing wastes not listed in Class I, in concentrations that may, if discharged to ground and/or surface water may cause degradation of the beneficial use of the water or harm the environment. Examples include but are not limited to, nitrogen compounds (<500 ppm), total dissolved salts (<2000 ppm), temperature, biological and chemical oxygen demands (<1000 ppm), phosphorus, and suspended solids or most dry manure systems.
 - c) Class III: Dilute wastewaters or treated wastewaters, including storm water, in concentrations that may, if discharged to surface water may cause degradation of the beneficial use of the water or harm the environment. Examples include but are not limited to, nitrogen compounds (<150 ppm), total dissolved salts (<500 ppm), temperature, biological and chemical oxygen demands (<250 ppm), phosphorus, and suspended solids or some dry manure systems with dilute wastewater.
 - d) Class N: Wastes and wastewaters generated during a spill, by-pass, or unit process failure that would not normally enter the waste management system, but does or is likely to, as a result of the spill, by-pass, or unit process failure.
 - e) Class V: Other wastes and wastewaters, including storm water, not otherwise classified.
39. Waste Management System Classifications. Surface impoundments are classified according to the waste management system treatment and purpose as follows:
- 1) Dry Manure Systems. Waste management that utilizes the dry manure system includes those CAFOs that provide areas for generation and collection of feces and urine on open ground, partially covered area, concrete floors, or other surfaces that does not utilize or otherwise allow liquid to transport the waste from the generation site to the treatment site, except as storm water runoff (e.g., dairy or beef cattle raised on dirt or concrete feedlot, poultry dry litter systems, other animals corralled on dirt or concrete feedlot).
 - (a) Storm water Runoff Disposal Lagoon. Storm water runoff disposal lagoons associated with dry manure systems are considered to contain only liquids collected after a storm event that contains waste from the feedlot area that is transported from point of generation to the lagoon by storm water runoff via land surface, piping, or other natural and/or man-made conveyances and held in the lagoon for disposal by evaporation, seepage, and/or disposal by land application.

remove the
slurry.

- (b) Storm water Runoff Treatment Lagoon. Storm water runoff treatment lagoons associated with dry manure systems are considered to contain only liquids collected after a storm event that contains waste from the feedlot area that is transported from point of generation to the lagoon by storm water runoff via land surface, piping, or other natural and/or man-made conveyances and held in the lagoon for treatment prior to disposal by evaporation, seepage, and/or disposal by land application.
 - (c) Manure Solids Holding Areas. Manure solids holding areas associated with dry manure systems that are used to store manure solids prior to removal for use as a fertilizer or other beneficial reuse.
- 2) Wet Manure Systems. Waste management systems utilizing wet manure system includes those CAFOs that provide areas for generation and collection of manure (i.e., feces and urine) and that rely on a liquid transport system to collect and waste from the confinement area to the treatment areas a liquid
 - (a) Concrete Pits Under Barns. Waste management for wet manure systems generally include a concrete pit with a maximum depth of 2 feet that is constructed under a slatted floor as a part of the barn foundation. The concrete pit includes all appurtenances used to wash manure from the inside of the barn down through the slotted floors into the pits and to wash the manure from the pits to the lagoon.
 - (b) Anaerobic Digesters. Waste management for wet manure systems may include the use of anaerobic digesters to reduce the volatile solids loading on the anaerobic lagoon. Digesters are designed to maximize anaerobic degradation of manure solids while minimizing the loss of nutrients.
 - (c) Short-term Anaerobic Lagoons. Waste management systems for wet manure systems may include the use of an anaerobic lagoon (liquid depth greater than 10 feet) to use biological degradation to reduce the amount of organic loading prior to disposal by discharge or disposal by land application. The short-term anaerobic lagoon provides temporary storage (i.e., less than one year) of wastes prior to disposal.
 - (d) Long-term Anaerobic Lagoons. Long-term anaerobic lagoons provide long-term storage (greater than one year, generally greater than five years) and treatment of organic wastes and generally do not include discharge to the environment or to land application disposal systems in order to maintain quiescent conditions.
 - (e) Aerobic Lagoons. Aerobic lagoons are shallow lagoons (liquid depth less than 10 feet) that utilize oxygen-based biological degradation to reduce the organic loading of the waste prior to disposal by discharge or by land application. Lagoon may also be considered to be aerobic if mechanical aerators or other methods of introducing oxygen to the wastewater are employed as waste management controls.
 - (f) Composting. Composting of herbivorous manure only.
- 3) Batch process. A batch process is a process that generates wastewater in an intermittent time period where the facility can be operating normally and not generate wastewater for extended periods of time. A batch process means that the facility can continue to operate without generating wastewater, except for contaminated storm water. For example, a dry manure system that only generates wastewater as a result of contaminated storm water runoff can be considered a "batch process" because the wastewater is only generated during a storm event.
- 4) Continuous process. A continuous process is a process that generates wastewater on a regular basis where the facility can be operating normally and expect to generate wastewater either daily or weekly regardless of the generation of contaminated storm water. A continuous process means the facility would have to shut down partially or totally in order to prevent the generation of wastewater. For example, a wet manure

system at a swine facility generates wastewater on a daily basis and must discharge to the treatment system on a regular basis.

40. "Water pollution control structure" means a structure built or used for handling, holding, transferring, or treating manure or process wastewater, so as to prevent it from entering the waters of the state. The term also includes berms, ditches, or other structures used to prevent clean water from coming in contact with manure.
41. "Waters of the state" (NDCC 61-28-02.11.) means all waters within the jurisdiction of this state including all streams, lakes, ponds, impounding reservoirs, marches, watercourses, waterways, and all other bodies of accumulations of water on or under the surface of the earth, natural or artificial, public or private, situated wholly or partly within or bordering upon the state, except those private waters that do not combine or effect a junction with natural surface or underground waters just defined.
42. Additional term and associated chart. Equivalent Animal Numbers. An "animal unit equivalent" is a unit less number developed from the nutrient and volume characteristics of manure for a specific livestock type. The term "animal units" is used to normalize the number of animals (e.g., head) for each specific livestock type which produce comparable bulk quantities of manure. The animal unit equivalents for types of livestock and the numbers of livestock for facility size thresholds of 300 animal units (a.u.), and so forth, are listed in the following table.

Equivalent Numbers of the Livestock (hd) for Four Sizes (a.u.) of Animal Feeding Operations

Livestock Type	Animal Unit Equivalent	Equivalent Numbers of the Livestock (hd) For Four Sizes (a.u.) of Animal Feeding Operations			
		300 a.u.	1,000 a.u.	2,000 a.u.	5,000 a.u.
1 Horse	2.0000	150 hd	500 hd	1,000 hd	2,500 hd
1 dairy cow	1.3300	225	750	1,500	3,750
1 mature elk	0.7500	400	1,333	2,667	6,667
1 mature beef cow	1.0000	300	1,000	2,000	5,000
1 beef feeder-finishing	1.0000	300	1,000	2,000	5,000
1 beef feeder-back grounding	0.7500	400	1,333	2,667	6,667
1 mature bison	1.0000	300	1,000	2,000	5,000
1 bison feeder	1.0000	300	1,000	2,000	5,000
1 swine, >55 lbs	0.4000	750	2,500	5,000	12,500
1 goose or duck	0.2000	1,500	5,000	10,000	25,000
1 sheep	0.1000	3,000	10,000	20,000	50,000
1 swine, nursery	0.1000	3,000	10,000	20,000	50,000
1 turkey	0.0182	16,500	55,000	110,000	275,000

1 chicken

0.0100

30,000

100,000

200,000

500,000

B. ENFORCEMENT

Enforcement, inspections and emergency response. Neither the approval of construction plans, specifications, or the waste management system, nor the issuance of a permit or certification by the county, shall not prohibit the county from taking any enforcement action if the animal waste management system fails to protect the waters of the state, meet any specified effluent criteria, or comply with state surface and groundwater quality standards. In addition, this approval, issuance, or certification shall not constitute a defense by the operator regarding violation of any statute, regulation, permit condition, or requirement.

1. **On-site inspections.** The operator shall allow the county representative, or other county authorized personnel, upon the presentation of credentials and other documents as may be required by law, to perform the following regulatory functions:
 - a) **Entry.** Enter the premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of these or applicable CAFO-related state and federal regulations.
 - b) **Access to records.** Have access to and photocopy, at reasonable times, any records that must be kept at the facility under conditions of these or applicable CAFO-related state and federal regulations.
 - c) **Inspection.** Inspect, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required by these or applicable CAFO-related state and federal regulations.
 - d) **Sample or monitor.** Sample or monitor, at reasonable times, for the purpose of assuring compliance with permit conditions and these regulations or applicable CAFO-related state and federal regulations.
 - e) **Observe.** Observe the use and application of chemicals, water and waste transfer equipment, and all aspects of the waste management system, including land application of wastes and wastewaters and sludges, and the use of land application equipment.
 - f) **Search warrant.** Should the county or their agents be denied access to any land where such access is sought for the purpose authorized, the county may apply to any court of competent jurisdiction for a search warrant authorizing access to such land for such purposes. The court, upon such application, may issue the search warrant for the purpose requested.
2. **Spill response.** When a spill of chemicals or other toxic materials occurs or is suspected to have occurred at the facility or at the land application area that may reasonably pose a threat to public health or the environment, the operator shall cooperate with county representative, or other authorized personnel, upon the presentation of credentials and other documents as may be required by law to:
 - a) **Entry.** Enter the premises where the spill is alleged to have occurred using emergency response personnel, from both the facility and the county at any time of the day or night, when necessary, in order to observe the immediate effects of the spill.
 - b) **Access to records and emergency response personnel.** Have access within 12 hours of the spill to records, including equipment specifications and personnel testimony that may indicate the type of waste spilled, the amount of the spill, how the spill occurred, and what was done by the facility after the spill occurred.
 - 1) **Minimum information at time of spill.** The county shall have access to certain information immediately upon notification of the spill, including the Material Safety Data Sheet for the chemical or toxic material that was spilled, and the approximate volume of the spill. If the spill is significant, additional information may be required by the county.
 - 2) **Spill report.** The spill report shall be submitted to the county within ten (10) working days of the spill, unless a greater time is granted by the county. The spill report shall contain, at a minimum, the following information:
 - (a) When and where the spill occurred and when it was discovered, including date and time of day and the person(s) that discovered the spill.
 - (c) How the spill occurred, the purpose of any associated device(s), and how the spill can be prevented in the future.
 - (d) Damage assessment, including the volume of chemicals or other toxic materials were released, extent of release into the waste management system, the wastewater treatment system, and/or the environment and immediate and potential damages associated with the

spill into surface waters, groundwaters and soils, the volume of spilled chemical or materials that can be reclaimed, and other information as required by the county during the investigation.

- (e) Corrective action planned or performed to reduce adverse impacts on surface water, groundwaters, and soils and all sampling and analysis related to the spill.
 - c) **Inspection.** Perform an emergency inspection, at a time close to the spill as possible, of any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required by these or applicable CAFO-related state and federal regulations.
 - d) **Sample and monitor.** Sample or monitor, at a time as close to the spill as possible, for the purpose of determining the extent of damage to public health or the environment. If the operator is also sampling and/or monitoring the spill, the county reserves the right to ask for a split sample whenever possible.
 - e) **Abatement procedures.** Require the operator to implement emergency clean-up procedures in addition to those already employed by the operator upon observation of a significant threat to public health or the environment.
 - f) **Follow-up inspection.** Perform follow-up inspection(s) of the spill area or areas of the facility connected with the spill in order to determine the effectiveness of the abatement procedures carried out by the operator.
3. Compliance with proper operation and maintenance.
- a) **Need to halt or reduce not a defense.** It shall not be a defense for a permittee in an enforcement action to plead that it would have been necessary to halt or reduce the permitted activity on order to maintain compliance with the conditions of these regulations or the permit.
 - b) **Duty to mitigate.** The operator shall take all reasonable steps to minimize or prevent any discharge in violation of these regulations which has a reasonable likelihood of adversely affecting human health or the environment or creating a public nuisance.
 - c) **Proper operation and maintenance.** The operator shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the operator to achieve compliance with the regulations.
 - 1) Proper operation and maintenance includes the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with these regulations.
 - 2) The operator shall provide an adequate operating staff which is duly qualified and certified to carry out operation, maintenance and testing functions required to insure compliance with the regulations.
 - d) **Unit failure report.** The operator shall report to the county and state immediately when a unit failure has occurred that results in a release of wastes, wastewaters or sludges outside of the normal waste management system and/or into the environment (e.g., berm failure, severe leakage from lagoon, pipe burst, irrigation equipment failure, etc.). The unit failure written report shall be submitted to the county within ten (10) working days of the failure and contain at a minimum, the following:
 - 1) **When and where the unit failure occurred and when it was discovered, including date and time of day and the person(s) that discovered the failure.**
 - 2) How the unit failed, the purpose of the device(s), and how the failure can be prevented in the future (e.g., pipe burst).
 - 3) Why the unit failed (e.g., backpressure on the pipe due to traps not cleaned properly).
 - 4) Damage assessment, including the volume of wastewater released extent of release into the environment and immediate and potential damages associated with release into surface waters, groundwaters and soils, volume that can be reclaimed, and other information as required by the county during the investigation.
 - 5) Corrective action planned or performed to reduce adverse impacts on surface water, groundwaters, and soils and all sampling and analysis related to failure.
 - e) **Anticipated non-compliance.** The operator shall give advance warning to the county of any planned changes in the facility or activity which may result in noncompliance with permit conditions or standard condition of these regulations.
 - f) **Fines and other legal actions.** Penalties for violations of any duty to obtain a permit, violation of orders, rules and permits, and other violations of duties imposed pursuant to law, may include:
 - 1) **Criminal penalties.** In accordance with NDCC Title 36.

- 2) **Civil penalties.** Violations in civil proceedings shall be subject to penalties of not more than \$500.00 per violation; each day the violation continues shall be a separate violation.
 - (a) **Administrative penalties.** Violations in administrative proceedings shall be subject to assessment of an administrative penalty not to exceed \$250.00 per day of noncompliance.
 - (b) **Falsification of data.** False statements, falsification of data, omission of material data and similar acts are a violation of NDCC Section 12.1-11-02 or successor statutes.

4. Severability

If any paragraph, sentence, clause or phrase of this ordinance is for any reason held to be invalid or unconstitutional by a court of competent jurisdiction, such decision shall not affect the validity of the remaining portion of this ordinance.

C. PERMIT PROCEDURES

1. **Duty to apply.** Any person engaged in an activity requiring registration and/or permit as provided by law and this rule shall first complete, sign and file with the county an appropriate registration form or permit application. An application shall be required for a new permit, major modification of an existing permit, or new ownership of an existing facility that does not have a permit but is required to obtain a permit as provided by law and these regulations.

2. **Requirement for registration.** Concentrated animal feeding operations that have an animal unit capacity between 300 and 999 animal units are required to register with the county. The registration of these facilities is for purposes of determining the waste loading within watersheds of the county. The registration information shall be used to assist the county in determining long-term adverse impacts these small facilities may have on the environment in a cumulative impact scenario.

3. **Requirement to obtain a permit under the dual permitting program.** It shall be unlawful for any person to carry on the following activities at a concentrated animal feeding operation with animal unit capacity of 1000 animal units or more without first obtaining a county construction or operating permit from the county, as set forth in these regulations.

- a) The construction, installation, operation, and closure of any surface impoundment or treatment system, or the use of any existing unpermitted surface impoundment or treatment system with the jurisdiction of the county and which is proposed to be used for the containment or treatment of CAFO waste and wastewater.
- b) The construction, installation, or operation of any CAFO subject to the permitting authority of the county, the operation of which would cause an increase in the discharge of waste into waters of the state or would otherwise alter the physical, chemical, or biological properties of any waters of the state in any manner not already lawfully authorized by the county.
- c) The construction or use of any new outfall or impoundment for the discharge or seepage of any CAFO waste and wastewater or pollutants into waters of the state:
- d) Any major addition, extension, expansion, operational change or other change proposed for a facility permitted pursuant to these rules shall require the approval of the county through the major modification of the facility's permit prior to construction or implementation of such addition, extension, or change.
- e) Any major expansion shall require a construction permit if the expansion increases the animal unit capacity of the existing facility to 1000 animal units or more.
- f) Construction, installation, or operation of any CAFO with animal unit capacity between 300 and 1000 animal units, if it is determined by the county that the facility represents a significant water pollution potential.
- g) Multiple CAFO's with animal unit capacity less than 1000 animal units but located within one mile of each other, either in a straight line or at each unproductive corner of a section or combination of sections, whose total animal unit capacity would be 1000 animal units or more may be considered to be one facility and may be required to be permitted as one facility, if the multiple CAFO's are commonly owned or operated, the source of pollution is commonly owned, or they share a common waste management system, including but not limited to impoundments, piping, and land application or permitted separately with cumulative impacts as the criteria for requiring a permit if separately owned or operated.

4. **Duration of permit and renew.** The duration of permits issued by the county pursuant to these rules shall be as follows:
- a) **Construction permit.** For a term of 270 days during which time the applicant must commence construction or reapply for a construction permit. The construction permit is a onetime permit issued prior to commencement of construction. The applicant shall apply for and operating permit within six (6) months of commencement of operation.
 - b) **Permit review.** Permits will be reviewed every 5 years. The review will encompass all provisions of the original permitting process.
 - c) **Expansion.** Expansion, either singularly or multiple expansions, of an existing permitted facility that is less than 20 percent (20%) of the animal unit capacity may be permitted by modifying the existing operating permit. Expansion of an existing permitted facility greater than 20% shall be permitted with a construction permit for the expansion and as a major modification of the existing operating permit. Expansion of an existing nonpermitted facility that will result in animal unit capacity greater than 1000 animal units shall be permitted with a construction permit for the expansion and issuance of an operating permit for the entire facility.
5. **Application submittal.** Applications for registration or permits shall be submitted on forms approved and provided by the county, with necessary attachments, as follows:
- a) All application must be typewritten or otherwise clearly legible.
 - b) Reduced or enlarged forms are not acceptable and will be returned.
 - c) When a facility is owned by one person(s) but is operated by another person(s), it is the operator's duty to complete the appropriate forms and provide necessary attachments and file them with the county on behalf of the owner.
6. **Signature requirements.** All applications must be duly signed by the appropriate person. Photostatic copies will not be accepted. The application signature shall be made as follows:
- a) If the applicant is a private corporation, the application must be signed by:
 - 1) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, and
 - 2) The person responsible for safety and/or environmental affairs.
 - b) If the applicant is a partnership, sole proprietorship, or individual person, the application must be signed, respectively by a general partner, the proprietor, or the individual.
 - c) If the applicant is a municipality, political subdivision, the State or Federal government or other public agency or entity, the application must be signed by the principal executive officer of the entity or the ranking elected official.
7. **Time to apply.** The following schedules shall be followed when applying for county approval of animal feeding operations:
- a) **Registration.** A registration form shall be filed with the county thirty (30) days prior to commencement of construction for all new facilities that require only registration. Existing facilities that only require registration with the county shall file a registration form within 180 days of the effective date of these rules.
 - b) **New construction or expansion.** An application for new or expansion construction permit shall be filed with the county a minimum of one hundred and twenty (120) days prior to proposed commencement of construction date of any activity requiring a permit.
 - c) **Existing facilities.** An application for an existing facility that requires a permit shall be filed with the county within one (1) year of the effective date of these regulations.
 - d) **New operating facilities.** Facilities that are constructed after the effective date of these regulations shall obtain a construction permit prior to construction and shall obtain an operating permit after the facility has operated a maximum of 120 days by submitting amendments to the construction permit application that describe any changes between the proposed construction design and the "as-built" design for the facility.
8. **Construction and operation without authority.** The filing of an application form itself shall not be construed as authority to carry on such activity. Activities carried on without a permit are unlawful and shall be subject to applicable enforcement provisions and penalties contained in this regulation and all applicable federal and state regulations and law. Unauthorized activities must cease until a proper permit

is obtained from the county, including but not limited to administrative hearings and public notice processes. Initiation of construction before the issuance of a new or modified county permit shall be deemed to be solely at the risk of the owner or operator of the facility. The determination by the county to issue a permit shall not be influenced by the capital investment of an owner or operator that has constructed the facility without proper issuance of a county permit.

9. **Necessary attachments. *******

a) **Site selection and assessment standards**

1) **Objective**

This section describes the information required to evaluate the location of a new or expanding CAFO or AFO. Site selection is the single most important factor in protecting water and air quality resources from animal waste. Adequate surface and subsurface information is necessary to limit the potential of new or expanding facilities to degrade water and air quality resources.

(a) Site Selection Standards

Geologic and hydrologic conditions that control the movement of manure or wastewater to surface water or ground water sources are preferred for new or expanding facilities. Upland sites underlain by low permeability soil and located away from surface water are ideal for minimizing the migration of pollutants to surface water and ground water. Facilities that are located at less desirable sites typically require engineered improvements (e.g., above-ground storage tanks or constructed clay liners) to obtain approval for operation.

(b) The following site conditions shall be considered when evaluating the location of a CAFO or AFO:

Proximity to surface water;

Surface and subsurface soil types (e.g., the presence of sand lenses versus continuous clay liners);

Depth to ground water;

Surface topography; and

Distance to nearby residents, particularly in the prevailing downwind direction. Site conditions shall be evaluated by the county during the permit application review process and shall be considered when developing approval conditions for an animal facility.

2) **General requirements**

a) from a public water supply well, 50 feet from a private water supply well and not within 500 feet of any down gradient water supply well.

b) Manure Storage Considerations

The location of storage structures for an animal manure system should be as close as practicable to the manure source. Open storage structures should be located so that the prevailing wind direction will not be toward nearby occupied areas. Consideration should also be given to topography, vegetative screening and building location to minimize visual or air quality impacts from an operation. Water supply wells at existing operations should be protected from animal waste impacts.

3) **Site Assessments Standards**

a) **Scope of Site Assessment**

The scope of a site assessment is dependent on the size and location of the proposed livestock feed facility. Larger facilities or those located in sensitive hydrogeologic settings generally require more information to adequately evaluate the site. The assessment work required for these facilities is discussed in paragraph (b). Smaller facilities located in less sensitive hydrogeologic settings generally require less information. The scope of work required at these facilities is discussed in paragraph (c). Contact the county commissioners or their representatives with any site assessment questions.

In general, the following operations require more subsurface soil information:

(a-1) New large CAFOs, with the exception of open lot beef facilities with fewer than 2,000 animals and less than 20 acres in size;

(a-2) Existing operations expanding to large CAFO status, with the exception of open lot beef facilities with fewer than 2,000 animals and less than 20 acres in size; or

(a-3) New, existing or expanding AFOs that meet any of the following criteria:

(3-A) The site overlies or is located within 1 mile of a glacial drift aquifer (see attached map)

(3-B) The site overlies a sensitive ground water area, as defined by the Heath Department (see attached map);

(3-C) Soils at the site have a sandy loam, loamy sand, sand or gravel textural classes as defined by Natural Resources Conservation Service (NRCS) soil survey maps;

(3-D) A water supply well is screened at a depth within 30 feet of the ground surface at the facility;

(3-E) The site is within $\frac{1}{4}$ mile of a neighboring private water supply well, within $\frac{1}{2}$ mile of a non-community public water supply well or within 1 mile of a community public water supply well;

(3-F) The site is located within a delineated wellhead or source water protection area (see attached map); or

(3-G) The facility will use a storage pond that stores manure and waste water from an enclosed facility, as opposed to a pond that stores runoff from an open lot facility.

b) Site Assessment Requirements for Large Facilities and Those Located in Sensitive Hydrogeologic Settings.

Data regarding subsurface soil types shall be obtained by advancing soil borings, using a method that retrieves a relatively undisturbed soil sample. The soil borings shall be advanced to at least 25 feet below ground surface or at least 10 feet below the base of the waste pond whichever depth is greater. There shall be a minimum of three borings in the waste pond area or one boring per acre of pond area, whichever is greater. In outdoor feedlot areas, there should be one additional soil boring per 10 acres of feedlot area drilled to at least 25 feet below ground surface. Soil borings should be spaced throughout the proposed facility to enable an accurate assessment of the subsurface geology.

The borings shall be continuously logged, and the soil shall be classified using the Unified Soil Classification System (as outlined in ASTM D-2487) or the equivalent. Soil types shall be recorded in a soil boring log, along with soil colors, soil moisture conditions and the depth of any ground water encountered during drilling. The ground surface elevation at each location shall be obtained to evaluate the boring elevation in relation to the base of the waste pond. The elevation data shall either be reported in feet above mean sea level or referenced to an arbitrary site benchmark.

All soil borings shall be completed and abandoned by a certified monitoring well or water well contractor, according to the requirements established in NDAC Chapter 33-18-20 (Ground Water Monitoring Well Construction Requirements).

Depending on site geology or facility location, the county may require additional soil borings to adequately characterize soil and ground water. Additional borings may be required at sites with complex subsurface geology, such as sites with rapid transition from fine-to coarse textured soil.

c) Site Assessment Requirements for Smaller Facilities Not Located in Sensitive Hydrogeologic Settings.

Site assessments at facilities that do not meet any of the conditions of Section 3.1 typically require less detailed subsurface assessment. The assessment may be conducted using soil borings or by an alternative soil evaluation method that is approved by the county prior to site assessment.

Subsurface soils should be evaluated and logged to at least 12 feet below ground surface or at least 8 feet below the base of the waste pond, whichever depth is

greater. There shall be a minimum of three soil evaluations in the waste pond area or one soil evaluation per acre of pond area, whichever is greater. In outdoor feedlot areas, there should be one additional soil evaluation per 10 acres of feedlot, to a depth of at least 12 feet below ground surface. Subsurface soils shall be continuously logged, and soil shall be classified using the Unified Soil Classification System (as outlined in ASTM D-2487) or the equivalent. Soil types shall be recorded on a soil boring log, along with soil colors, soil moisture conditions and the depth of any ground water encountered during drilling. The ground surface elevation at each boring location shall be obtained to evaluate the boring elevation in relation to the base of the waste pond. The elevation data shall either be reported in feet above mean sea level or referenced to an arbitrary site benchmark.

If soil borings are used for evaluating subsurface soil, they shall be completed and abandoned by a certified monitoring well or water well contractor, according to requirements established in NDAC Chapter 33-18-20 (Ground Water Monitoring Well Construction Requirements). Excavated or disturbed areas resulting from the use of alternative soil evaluation methods shall be filled with compacted soil to achieve permeability equal to or less than the existing geologic formation.

- d) The facility's legal location and mailing address.
- e) A topographic map of the area where the facility is located showing the specific production area.
- f) Specific information about the number, size, and type of animals proposed for the facility; the number of days per year animals will be handled; and the type of confinement (open or housed under roof).
- g) The type of containment and storage (anaerobic lagoon, roofed storage shed, storage ponds, under-floor pits, above-ground storage tanks, underground storage tanks, concrete pad, impervious soil pad, other) and total capacity for manure, litter, and process wastewater storage (tons/gallons).
- h) The total number of acres under control of the applicant and available for land application of manure, litter, or process wastewater.
- i) Estimated amounts of manure, litter, and process wastewater generated per year (ton/gallons).
- j) Estimated amounts of manure, litter, and process wastewater transferred to other persons per year (tons/gallons).
 - 1) Designs for all manure storage and water pollution control structures and site-specific background information.
- k) **An operation and maintenance plan**
 The required elements of an Operation and Maintenance Plan for a concentrated animal feeding operation shall include at least:
 - 1) The names, addresses, and telephone number of the operator and of the operation and all owners of animals confined at the operation;
 - 2) The location, including latitude and longitude, and number of acres of the operation;
 - 3) A map indicating the general layout of the operation, including the location of each building or other structure, the location of all portions of the containment system, the location and flow of any surface water, the location of water supply wells, and the direction and degree of all grades within the property lines of the operation;
 - 4) A certification by the operator that the operator will be responsible for and will ensure compliance with the Operation and Maintenance Plan and the requirements of this ordinance and a certification by each owner of one (1) or more animals confined at the operation acknowledging the potential joint liability of the animal owner if the operator violates the terms of the permit or the requirements of this ordinance with respect to a discharge from the operation;
 - 5) An estimate of the annual animal production and the annual quantity of each type of animal waste produced by the operation;

- 6) the crop or vegetative cover schedule for any agricultural lands owned or leased by the operator;
 - 7) information necessary to determine the land area required for the application of animal waste from the operation as determined in accordance with the requirements of this ordinance and any crop or vegetative cover schedule specified in the plan;
 - 8) a schedule for periodic testing of soil nutrient levels;
 - 9) a schedule for periodic testing of animal waste nutrient levels;
 - 10) if methods of disposal for animal waste other than land application by or on behalf of the operator will be used, a description of those methods and the annual quantity of animal waste to be disposed of by each of these methods;
 - 11) a description of the methods, structures, or practices that the operator will use to prevent soil loss, surface water pollution and ground water pollution while minimizing odors and pests caused by animal waste during collection, storage, and application;
 - 12) a description of methods, procedures, and practices that the operator will use for:
 - ** operation, monitoring, maintenance, and inspection of animal waste storage operations; and**
 - ** handling, transportation, application, and treatment of animal waste, including storage volume, schedules for emptying storage operations, and application schedules, rates, and locations;**
 - 13) a description of contingency measures that the operator will use to minimize environmental pollution resulting from any unexpected waste leak or discharge;
 - 14) **a description of practices and procedures that the operator will use for maintaining records detailing compliance with the Operation and Maintenance Plan and this ordinance and;**
 - 15) any additional requirements imposed by the county.
- (h) Records of inspections and preventative maintenance of equipment required by state law and regulation and this ordinance.
 - (i) Copies of all landowner agreements for land that is not owned by the swine facility and is scheduled to receive manure or wastewater.
 - (j) Names of employees and contractors whom the operator of the swine facility identified pursuant to law to supervise the process of transferring manure or wastewater to land application equipment and the process of land application.
 - (k) Records of training of all personnel who supervise and conduct land application of manure or wastewater, as required by law; and
 - (l) Any other information required by the county to facilitate approval.
 - (m) Conduct soil tests, including but not limited to the following:
 - (m-1)** Tests for nitrogen, phosphate, chloride, copper and zinc, on the land application areas prior to preparation of the nutrient utilization plan and at least annually thereafter, or as often as required by best available soil science and standards relative to the soils of, and crops to be grown on, the land application areas, and
 - (m-2)** Include the results of such tests in the nutrient utilization plan.
 - (n) Conduct manure nutrient analyses of manure and wastewater prior to preparation of the nutrient utilization plan and at least every two years thereafter and include the results of such analyses in the nutrient utilization plan.
 - (n-1)** Compare the manure nutrient analyses with the soil tests to calculate needed fertility and application rates for pasture production and crop target yields on the land application areas prior to the preparation of the nutrient utilization plan and each time thereafter when new soil tests or manure nutrient analyses are conducted or required.
 - (n-2)** Include such calculations in the nutrient utilization plan.

- (o) If a swine facility finds that the soil tests indicate that the phosphorus holding capacity for any soils in the facilities land application areas may be exceeded within five years, the facility shall promptly initiate the process to obtain access to the additional land application areas needed, or make other adjustments, to achieve the capability to apply manure or wastewater at appropriate agronomic rates.
- (p) The facility may be required to apply manure or wastewater on all or a portion of the facility's land application areas at a rate within the agronomic phosphorus needs of the crops or pasture, or the soil phosphorus holding capacity, in less than the time originally allowed in the approved nutrient utilization plan if the county finds that the land application actions of the facility are contributing to the impairment of groundwater or surface water.
- (q) The plans shall include compliance with the requirement that manure or wastewater shall not be land applied on bare ground by any process, other than by incorporation into the soil, within 2,500 feet of any habitable structure, wildlife refuge or city, county, state or Federal Park, unless:
 - (q-1) The manure or wastewater has been subjected to physical, biological, or biochemical treatment or other treatment method for odor reduction approved by the county.
 - (q-2) The manure or wastewater is applied with innovative treatment or application that is best available technology for swine facilities and best management practices for swine facilities or other technology approved by the county, or
 - (q-3) The owner of the habitable structure has provided a written waiver to the facility.
- (r) **Classification of waste, wastewater analysis.** Prior to the first land application event, the permittee shall provide a wastewater analysis of the wastewater intended to be disposed of by land application. The sampling shall include at least three composite samples composed of grab samples at several depths in the impoundment to insure that the resulting analyses represents the quality of wastewater to be land applied. Analyses shall include at a minimum the following parameters:
 - (r-1) Nitrogen content (mg/l and lbs/gallon), including total Kjeldahl nitrogen, ammonium nitrogen, nitrite-nitrogen, and nitrate-nitrogen.
 - (r-2) Phosphorus content (mg/l and lbs/gallon), including total phosphorus in liquid and total phosphorus in solids.
 - (r-3) Biochemical oxygen demand (mg/l and lbs/gallon) (BOD five day method).
 - (r-4) Zinc and copper (mg/l).
 - (r-5) Total dissolved solids (mg/l TDS and lbs/gallon).
- (s) **Calculations of nutrient content.** Calculate nitrogen and phosphorus content showing all expected losses throughout the waste management system to justify the final amount, including but not limited to losses due to volatilization and adsorption.
- (t) **Management of other pollutants of concern.** Calculate the loading of salts, metals, and BOD based on the volume of wastewater that must be disposed of at each crop cycle. Compare the waste loading to acceptable loading rates for metals, salts, and BOD as used in land application of municipal wastewater and sludges. If the acreage required for waste loading is higher than that used for nutrient loading, use the higher acreage requirement.
- (u) **Soil testing prior to land application.** The county may require soil testing beyond that required by the state on a case-by-case basis as a condition of the permit. The operator shall provide the soil testing data to the county.
- (v) **Surface water and groundwater information.** Provide groundwater information on each land application site, including the depth to groundwater, direction of groundwater flow, and the legal description of each well used to determine groundwater information.
 - (v-1) **Maps.** Provide a topographic map containing 1 foot contours of the land application sites clearly indicating all waters of the state, including immediate watershed and topography that would cause storm water runoff to enter waters of the state.
 - (v-2) **Water quality monitoring.** Provide the number, design specifications, total depth, depth of completion, and legal description of the monitoring wells proposed for or located

at a land application site, including well logs or driller logs, if available. Indicate the elevation of each well as surveyed, the depth to static water level, and the date the static water level was measured.

(v-3) Existing wells. Provide information on existing wells located in the land application area and within 500 feet of the outside boundary of each land application site, and whenever possible from well completion records in the public files, provide information including the total depth, depth of completion, and static water level of each well and date static water level was measured, and show locations on a topographic map of the site and surrounding area.

- (w) **Amendments.** Changes to the nutrient utilization plan shall be submitted to the county as amendments to the plan and shall be incorporated into the permit upon review of the county permit, unless modification of the permit is warranted.

- 2) **County requirements for non-swine facilities.** The county may require a nutrient utilization plan to be developed for non-swine facilities as a condition of the permit on a case-by-case basis. The non-swine nutrient utilization plan shall contain at a minimum, the following:

- (a) **Nutrient utilization plan.** All portions of the swine nutrient utilization plan that are applicable to non-swine facilities, such as waste classification, nutrient calculation, crop needs, maps, records of precipitation and amounts of irrigation, records of disposal, soil tests, and those requirements that may occur.

- (b) **Amendments.** Changes to the nutrient utilization plan shall be submitted to the county as amendments to the plan and shall be incorporated into the permit upon review of the county permit, unless modification of the permit is warranted.

- (c) **Rates and frequencies of land application.** When setting limits on animal feeding operations waste and wastewater disposal by land application (including loading, hydraulic, and application rates, and frequency and timing of application), the county shall base its determination on the parameters to be monitored and sampled and criteria and factors set forth in classifications of waste and wastewater and environmental risk. The loading requirements for animal feeding operation waste and wastewater disposal by land application shall be subject to the following factors and criteria, at a minimum:

(c-1) Hydraulic loading rates. At a minimum, the hydraulic loading shall not result in uncontrolled and contaminated surface water runoff or persistent ponding or flooding.

Hydraulic loading rates shall be determined using regional and local Plant Available Nitrogen (PAN) evaporation rates, precipitation rates, properties of the soil indicative of water capacity and agronomic water requirements.

(c-2) Concentration or mass loading rates. Concentration or mass loading rates of metals, biochemical oxygen demand, salts, and other toxic waste constituents shall be determined and shall be limited to values that at a minimum, provide for average crop yields during the life of the facility and do not exceed the annual assimilative capacity of the soil for non-nutrients, especially for salinity, metal toxicity, and biochemical oxygen demand. Persistent or conservative pollutants that can cause irreparable harm to the soil shall be monitored to determine when fifty percent (50%) of the assimilative capacity of the soil has been consumed.

(c-3) Nutrient loading rates. The amount of nutrients to be land applied (lbs/acre/year) shall be determined for nitrogen, phosphorus, and potassium.

(3-A) A comparison shall be made between the PAN and the nitrogen uptake of the vegetation sustained on the land. Soil tests used to determine residual nitrogen as required by the PAN equation shall be at a minimum one composite sample per two feet depth to a total depth of the soil profile if soil is not dominated by sandy materials or to a depth of 10 feet if the soil profile is dominated by sandy materials in order to determine the depth of penetration of nitrogen compounds below the root zone.

(3-B) Nitrogen loading rates shall be maintained to minimize the formation and infiltration of nitrates in concentrations that may adversely impact groundwater and/or create a stormwater runoff that may adversely impact surface water.

(3-C) At no time shall the nitrogen loading rate exceed the plan nitrogen uptake rate for the average yield of the intended crop.

(3-D) Phosphorus loading rates shall be maintained to minimize stormwater runoff that may adversely impact surface water. Soil tests used to determine residual phosphorous shall be at a composite sample for each two inches of soil to a total depth of four inches.

(3-E) At no time shall the phosphorus loading on the soils exceed agronomical rates in compliance with the nitrogen management in the direct watershed of an impaired stream.

(c-4) **Enteric bacteria (e.g., Salmonella).** The land application of waste and wastewater, including contaminated stormwater shall be performed in such a manner to prevent or reduce the viability of enteric bacteria on the soil surface, especially Salmonella.

(4-A) Soils shall be tested once a year at fourteen days past the land application event to determine if Salmonella is still visible in the soil profile.

(4-B) If Salmonella is found to be viable, the operator shall develop a strategy to reduce the recurrence by the next land application event and incorporate that strategy, if successful, into the nutrient utilization plan.

(d) **Post-application evaluation.** The county may require soil testing after land application to determine the transport and fate of applied nutrients and wastes to determine if the loading rates used are appropriate for the assimilative capacity of the soil for BOD, salts, metals, and other pollutants of concern and the crop nutrient needs for nitrogen and phosphorus. Analytical results shall be submitted to the county and used to amend the nutrient utilization plan as needed.

(e) **Emergency response.** The operator shall have an emergency response plan dedicated to unit failure of the land application equipment, including pumps, piping, fittings, safety valves, anti-pollution devices, irrigation equipment, and stormwater runoff controls.

(e-1) **On-site observation.** At no time shall wastes and wastewaters be land applied without direct on-site observation by the operator of the facility. The observer shall be trained in emergency response and have procedures to handle unit failure in such a manner as to reduce or minimize the amount of wastes and wastewaters that are released as a result of normal operation and in the case of unit failure.

(e-2) **Reporting.** The operator shall notify the county within four (4) hours or sooner if possible, upon first knowledge of an emergency situation in the land application area and fulfill the requirements of a unit failure report.

3. **Land Application and Sludge Disposal** The following general requirements apply to all CAFOs with animal unit capacity of 1000 animal units or more that utilize land application as a method of disposal of CAFO generated wastes, wastewater and/or sludges.

(a) **Beneficial Use.** No person may apply sludge or wastewater to the land except for the purpose of beneficial use, unless it is shown that the land application will not pollute or tend to pollute the environment, nor pose a risk to human health, nor cause any deterioration of the long-term use of the site, land surfaces, soils, surface water, and/or ground waters.

(a-1) **Timing.** Timing and rate of land applications shall be in response to crop needs, assuming usual nutrient losses, excepted precipitation, and soil conditions.

(a-2) **Nutrient benefit.** Land application of wastes, wastewaters, and sludges shall not exceed the nitrogen uptake of the crop coverage or planned crop planting. If the local water quality is threatened by phosphorus, the land application rate shall not exceed the phosphorus uptake rate of the crop coverage or planned crop planting.

(a-3) **Crop restrictions.** Land application of wastes and wastewaters shall not be applied on any human consumptive food crop that may be eaten raw. Land application of wastes and wastewaters may be land applied on secondary human consumptive crops, such as corn, wheat, and oats, provided a period of thirty (30) days elapses between the last application and harvest.

(b) **Prevention of deterioration of soils.** Land application of wastes and wastewaters, including stormwater, shall be performed using conservative evaluation between waste loading, nutrient loading, and hydraulic loading, such that the following are met:

(b-1) Assimilative capacity. The assimilative capacity of the environment shall not be exceeded beyond 50% of the reasonable assimilative capacity of metals, salts, and other conservative pollutants.

(b-2) Viability of soil. At no time shall the loading occur to the point that the soil is no longer viable for normal agricultural purposes.

(b-3) Crop rotation. Crop rotation and other similar agricultural practices shall be utilized to insure that the soil is maintained for long-term agricultural uses and to prevent erosion.

(b-4) Highly erodible soils. Land application shall not occur on lands classified as highly erodible according to the conservation compliance provisions of the federal food security act of 1985, as in effect on the effective date of these regulations, and classified as highly erodible on the basis of erosion resulting from water runoff, unless approved by the county.

(b-5) Soil pH. Any site with soil having a natural pH of less than 5.5, or a pH otherwise not conducive to optimum crop yield, shall not be used for the land application of wastes and wastewaters unless the soil pH is amended prior to application and documentation of such amendment is recorded on site as lbs amendment per acre and the final pH determined with soil tests meets or exceeds these requirements.

- (c) **Climate restrictions.** Wastes, wastewaters, and sludges shall not be applied to the land when the ground is frozen or saturated or during rainfall events, regardless of soil conservation practices allowed by the state. The practice of land application shall be performed to reduce or minimize ponding or puddling of wastewater and shall be limited to those discreet times when crop uptake of nutrients warrants the application of wastes and wastewaters. The operator shall plan ahead and maintain enough storage volume in the waste management system to allow storage until the appropriate climate conditions and crop nutrient requirements prevail.
- (d) **Discharges and runoff prohibited.** Wastes, wastewaters, and sludges shall not be land applied in wetlands or any other waters of the state nor allowed to enter such as surface runoff or by other means. All discharges to waters of the state due to contaminated stormwater runoff, infiltration to shallow groundwater and subsequently surface water, and other hydrologic means from land application sites are prohibited unless a permit has been obtained from the county that specifically authorizes such discharge in an environmentally sound manner.
- (e) **Sludge incorporation.** Sludge applied to the surface of the land shall be incorporated into the soil before the end of each working day.
- (f) **Odors, disease vectors, and spray drift.** Land application of wastes, wastewaters and sludges shall be done in a manner and at certain times of the day that minimize or prevents the occurrence of nuisance conditions, such as odors; shall control disease vectors, such as flies, and rodents; shall avoid spray drift from the land to which it is applied; and shall prevent contamination of soils, ground water and surface water.
- (g) **Waste classification.** The wastes, wastewaters, and sludges shall be sampled and analyzed to determine the presence and concentration of pollutants of concern in order to determine the waste classification, including but not limited to total nitrogen, ammonia nitrogen, nitrate-nitrogen, phosphorus, potassium, total dissolved solids (TDS), biochemical oxygen demand, Salmonella, and metals, such as copper and zinc.
- (h) **Soil condition.** The type of soils shall be identified according to standard soil classification used by the NRCS using both soil surveys and field verification. All background and required soil sampling and analyses shall be, at a minimum, of a composite sample taken from an area 80 acres or less in size at each site proposed or used for land application of wastes and wastewaters. The number of composite samples shall be sufficient to identify all types of soils located within the land application area as identified in the county soil survey. The county may approve a larger sampling area or require a smaller sampling area as a condition of the permit.
- (i) **Site and location requirements.** The following requirements apply to all land proposed to be used for land application of CAFO generated wastes, wastewaters, and sludges:

(i-1) Proximity to habitable structures. At no time, shall wastes, wastewaters, or sludges be land applied within 500 feet of a habitable structure.

(i-2) Proximity to surface water. At no time, shall wastes, wastewaters, or sludges be land applied within 300 feet of surface water.

(i-3) Habitable structures, refuge, and parks. At no time shall untreated wastes and wastewaters be land applied on bare ground, without incorporation into the soil on the same day, within 2,500 feet of any habitable structure, wildlife refuge, or city, county, state or federal park or the surveyed plat or federally funded plan thereof that was in existence on the effective date of these regulations.

(3-A) If the operator submits soil conservation practices to the state to allow land application of raw waste or wastewater to the soil without incorporation, the county shall review the practices and make a determination as a condition of the permit.

(3-B) If the operator submits innovative technology basis to the state to allow land application of raw waste or wastewater to the soil without incorporation, the county shall review the technology and make a determination as a condition of the permit.

(3-C) If the operator submits a waiver from the owner of the habitable structure as a condition for the state to allow land application of raw waste or wastewater, the county shall require said waiver to be filed as a restriction of the deed prior to a determination as a condition of the permit.

(i-4) Alluvial terrace deposits and sand dunes. Land associated with alluvial terrace deposits, sand dunes, or excessive erosion shall be avoided, especially if also associated with shallow groundwater hydrologically connected to surface water.

i-5) Topography. The land application site(s) shall have minimal slope or be contoured to prevent ponding and soil erosion.

(5-1) No application shall occur on land having a slope exceeding five percent (5%) unless erosion and runoff control provisions are implemented.

(5-2) Land having a slope of ten percent (10%) or less may be utilized for the land application of dewatered or dried sludges if they are knifed in or otherwise incorporated into at least the top six (6) inches of soil.

(i-6) Grassed strips. Edge-of-field, grassed strips shall be used, at a minimum, to separate water courses from contaminated stormwater runoff carrying eroded soil, manure particles, and other pollutants of concern.

(i-7) Wildlife. Land application shall not occur if it is likely to adversely affect a threatened or endangered species listed under Section 4 of the Federal Endangered Species Act, 16 U.S.C. 1533(c), or the critical habitat of such species, or other wildlife protected by the state as a threatened species.

(j) Wellhead protection. Land application of wastes and wastewaters and sludges shall not occur within 300 feet of a private or public drinking water well nor within 100 feet of any facility water well.

(L) Closure and financial assurance instruments.

- 1) The Towner County Commissioners shall establish by rule the conditions and standards for proper closure of a concentrated animal feeding operation upon cessation of operations. These shall address at a minimum lagoon draining, cleaning and filling, removal of waste handling facilities and equipment, and other conditions to assure public health and safety.
- 2) Financial assurance instruments (irrevocable letter of credit, cash surety bonds or cash bonds) shall be posted in an amount sufficient to ensure proper closure. The exact amount shall be site-specific and shall be determined by a study conducted by a professional engineer or consultant licensed by the state. The cost of the engineer's or consultant's study will be paid for by the developers (posting entity).
- 3) Upon proper closure, as determined by an inspection by the Health Department and/or County Representative the financial assurance instrument shall be returned to the posting entity.
- 4) If upon inspection by the Health Department and/or County Representative it is determined that conditions exist that do not comply with the closure rules, funds shall be acquired from the financial assurance instrument to achieve such compliance. Any unspent portion of such financial assurance instrument shall be returned to the posting entity.

- 5) If the County Commissioners determine that an emergency situation requiring immediate corrective action exists, they can utilize the financial assurance instrument to correct the emergency situation. The financial assurance instrument will be reimbursed to the original amount by the duly signed person(s) on the permit or registration application within ninety (90) days of the emergency or as agreed upon by the County Commissioners.
- 6) The County Commissioners must sign on the bond between the facility and the bonding company. If there is any change in the bond, security, or surety, the County must be immediately notified in writing.
- 7) Closure requirements. The following closure requirements are intended for all new CAFOs located in Towner County that have an animal unit capacity of 1000 animal units or more. Existing facilities may use these closure regulations voluntarily as a part of their environmental program. The county reserves the right to require closure of any impoundment using these requirements that is shown to pose imminent and substantial harm to human health or the environment.
 - (a) **Notice of termination.** The owner, operator or permittee (if permitted) shall provide the county with a minimum of thirty (30) days written notice prior to permanent cessation or abandonment of the animal feeding operation or any part of the wastewater treatment system. Written notice shall contain, at a minimum, the following information:
 - (a-1) Name, address, and title of person(s) who is in charge or will remain in charge of or otherwise have continuing management responsibility of the facility or site and who will retain an ownership interest in personal or real property affected by the permitted action.
 - (a-2) A detailed schedule of proposed closure activities of the operation and/or any part of the abandoned wastewater treatment system.
 - (a-3) Forwarding addresses and names of each present owner and/or operator and the forwarding addresses and names of any other person listed in a County Permit for the facility, in the case of closure of the operation.
 - (b) **Requirements are mandatory.** It shall be a violation of these rules to permanently cease the use or abandon any facility or site or any part of the wastewater treatment system, including but not limited to pits, lagoons, impoundments, piping, disposal areas, storage areas, and land application sites without complying with notice and closure requirements.
 - (c) **Correction of environmental damage.** The county may require such continuing monitoring, sampling, reporting, or other remedial measures as deemed appropriate and necessary to correct environmental damage resulting from the activities subject to the requirements of these rules. Appropriate and necessary remediation measures shall be reviewed and approved and/or determined by the county on a case-by-base basis as allowed by this regulation and other applicable rules and laws. The county may require that the permittee or person(s) responsible for proper closure of the facility to provide such information to the county as is necessary to determine what remedial measures are appropriate and necessary.
 - (d) **Conditions requiring closure and time for closure.** When any part of a wastewater treatment system, including but not limited to concrete pits, surface impoundments, sludge disposal areas, carcass disposal areas, and land application sites, is to be permanently taken out of the intended service or if the contents of the system or use of the system poses an direct, imminent, or substantial risk to the health and environment or irreparable harm to waters of the state, the owner or operator or permittee (whichever is applicable) shall be required to properly close the part of the wastewater treatment system within six (6) months, unless a longer amount of time is granted by the county.
 - (d-1) **Imminent harm.** The county may order or otherwise require closure within a shorter period of time as allowed by law in appropriate circumstances, such as in cases where it is necessary to protect human health and welfare or to protect wildlife or beneficial uses of waters of the state.
 - (d-2) **Waiver of closure requirements.** The county may waive some or all closure requirements if the surface impoundments or other aspects of the wastewater treatment system must be closed under federal (e.g., RCRA regulations) or state regulations (e.g. N.D. regulations), if such regulations provide equivalent protection of the health and environment as provided by these county regulations.
 - (d-3) **Prevention of formation of nitrates.** The closure of surface impoundments that contained wastes and wastewaters generated by a wet manure system shall be considered a priority in order to prevent the formation of nitrates by any accumulation of

ammonium saturated soils that when environmental conditions change may be biologically changed to nitrates.

(d-4) Empty surface impoundments. At no time shall a surface impoundment be placed into operation if allowed to dry to the point of erosion and cracking of the soil liner system without physical improvement to the liner system, a new assessment of the liner permeability and seepage, and approval by the county to utilize the lagoon as part of the wastewater treatment system for a wet manure system.

(d-5) Liner integrity. The partial or total closure of surface impoundments shall be required if the liner integrity has been jeopardized beyond reasonable repair, including but not limited to the following situations:

(5-A) Flexible membrane liner bubbles. If the flexible membrane liner develops bubbles that push the liner material from the subgrade material. A partial closure may be required to remove the liquid in the lined lagoon prior to remedying the problem area. A total closure may be required, if the integrity of the liner has been jeopardized beyond reasonable repair.

(5-B) Soil or clay liner erosion. If the soil or clay liner has eroded beyond reasonable repair causing the potential for leakage into the subsurface, a partial or total closure may be required.

(e) Closure requirements. The following closure requirements apply to any animal feeding operation wastewater treatment system which is permitted by the county or contains or has contained wastes regulated by the county:

(e-1) Pre-closure site investigation. Prior to submitting a closure plan to the county, the owner or operator or permittee, whichever is appropriate, shall perform a pre-closure site investigation after the county has approved the pre-closure site investigation and sampling plan.

(1-A) Plan submittal. A pre-closure site investigation and sampling plan shall be prepared and submitted to the county for approval at least thirty (30) days prior to any pre-closure sampling, monitoring, or other site investigation. The plan shall include the following:

(1-A-i) Narrative description of the proposed pre-closure site investigation including a list of all systems, impoundments, appurtenances, structures, disposal areas, and other areas of environmental concern will be evaluated for potential sites for sampling, monitoring, or other names of investigation used to determine closure activities.

(1-A-ii) A detailed description of any groundwater, surface water, and/or soil sampling including a facility map showing intended sites for sampling; description of sampling methods, list of analytical parameters including EPA method, detection limit, and units of reporting; and intended purpose for each type of sampling and analysis.

(1-B) Monitoring plan. Any monitoring plan shall include the applicable requirements as listed by the state and this ordinance.

(1-C) Approval of plan. The county will review the pre-closure site investigation and sampling plan within thirty (30) days of submittal to the county and respond to the submitter with either a list of deficiencies or an approval of the plan. If deficiencies are identified by the county, the submitter shall promptly correct such deficiencies and submit a revised plan.

(1-D) Site investigation and reporting. The owner or operator or permittee, whichever is applicable, shall perform the site investigation and report to the county the results of all groundwater, surface water, and soil analyses, as well as prepare a brief summary of all critical environmental problems that will be addressed in the closure plan.

(e-2) Closure procedure. The following procedure shall be used for proper closure of animal feeding operation wastewater treatment systems:

(2-A) Plan submittal. A written closure plan shall be submitted to the county at least ninety (90) days prior to commencing closure, unless a lesser amount of time is granted by the county.

(2-B) Closure action. Closure activities shall occur as specified in the closure plan.

(2-B-i) The county shall be notified at least five (5) working days prior to the commencement of closure in order to facilitate on-site inspection or other site visit.

(2-B-ii) If the wastewater treatment system contained Class I or Class II wastewater or is located in a high risk environment, the closure activities shall be overseen by a professional engineer registered in the State of North Dakota or if approved by the county, by an environmental specialist with formal training in wastewater treatment and groundwater pollution controls.

(2-C) Amendments. Any amendments to the closure plan shall be submitted in writing to the county for review and approval before any closure activity is altered, replaced, or deleted. Arrangements may be made with county for verbal approval of changes during closure activities, when necessary for safe and effective closure, providing that the changes are immediately submitted in writing for inclusion in the public file.

(2-D) Commence activities. Closure activities shall not commence until the closure plan and all amendments thereto have been evaluated by the county and the county has issued a written determination that, based upon information provided to the county, the closure plan or the amended closure plan meets the requirements of the county and these regulations.

(2-E) Certification of closure. A closure shall not be considered complete until the county has received written certification of closure, which shall include the following:

(2-E-i) A statement that all activities listed in the county-approved closure plan were performed.

(2-E-ii) A list of all closure activities that were performed (e.g., filed notes from the attending engineer) and a narrative discussion of all inspections, sampling and analysis, and other pertinent information as may be required by the county.

(2-E-iii) If the wastewater treatment system contained a Class I or Class II wastewater, the certification shall be prepared and signed by a professional engineer registered in the state of ND, or if approved by the county, by an environmental specialist with formal training in wastewater treatment and groundwater pollution controls.

(e-3) Closure plan content requirements. At a minimum, the written closure plan shall include the following information, as well as information as requested by the county:

(3-A) General information. The following general information shall be provided in all closure plans:

(3-A-i) Purpose of closure. State the purpose of closure indicating the reason why the waste management system, in part or in whole, is or is proposed to be no longer in use.

(3-A-ii) Permit number. Provide the federal, state and county permit numbers for the facility. If the facility has not been permitted, the county may require information usually submitted with a permit application.

(3-A-iii) Owner/operator. Provide the name, address, and telephone number for the owner of the facility and the operator of the facility.

(3-A-iv) Consent. If the operator is not the sole record owner of the land, surface property interests and all water rights, then the operator shall provide a written document from such owner(s) indicating that

the owner(s) have read the proposed written closure plan and consent to any specified on-site or off-site disposal of wastes, wastewaters, contaminated soils, construction debris, and other potential wastes identified during closure.

(3-A-v) Time schedule. Provide a time schedule indicating the major closure activities, the approximate time to complete each activity, and the estimated time required to achieve completion of all closure activities.

(3-A-vi) Certification. If the waste management system, in part or in whole, that is proposed to be closed contained Class I or Class II waste or wastewaters, the closure plan shall be reviewed and signed by a licensed professional engineer registered in the State of ND with a certification statement that the closure plan activities will be protective of human health and the environment, including water of the state.

(3-B) Site assessment. The following minimum information about the site shall be provided in the closure plan:

(3-B-i) Soil information. Identify the type of soil(s) by soil series name impacted and include a description of the soil profile and the depth to bedrock and/or to the producing aquifer. List chemicals and physical properties of the soil, and their average values for the site, that predict the transport and fate of the pollutants of concern in the waste contained in the waste management system to be closed. Photocopies of soil maps from the Soil Conservation Service and/or recent aerial photographs shall be included.

(3-B-ii) Groundwater information. Identify major and minor groundwater aquifers, recharge areas, depth to groundwater for both shallow and drinking water sources, local and regional direction of flow, and estimated or actual background water quality of the shallow and drinking water source. Topographic, geologic, hydrologic, and other maps shall be used to indicate location and extent of groundwater at the site, including local and regional direction of groundwater flow.

(3-B-iii) Surface water information. Identify surface water bodies that may be hydraulically connected to the groundwater or are immediately downgradient of the drainage area around the waste management system, including the land application area to be closed. Trace the drainage to the nearest major watercourse on a topographic map of appropriate scale.

(3-B-iv) Plans and specification. Provide the engineering plans and specification that details the "as-built" conditions of the waste management system to be closed indicating the dimensions of the impoundments, location of and materials used for piping and appurtenances, location of inflow and outflow piping, location and thickness of sludge, and depth of wastewater in each impoundment.

(3-B-v) Land application area. Provide records that state the amount and type of wastewater land applied to the land application area, the type of crops grown, number of crops grown using wastewater, annual volumes of wastewater applied, wastewater analysis (es), and soil tests.

(3-C) Waste characterization. The following minimum information about the wastes currently contained and historically contained in the waste management system shall be provided in the closure plan.

(3-C-i) Historically contained wastewater. Provide an inventory of wastes and other records that indicate the types and concentration of wastes and wastewaters that are contained in the waste

management system to be closed. Indicate the frequency and volume of each type of waste that was or may have been contained or otherwise placed in the system, including but not limited to pesticides, rat and fly bait, pharmaceuticals, manure and urine, disinfectants, feed additives (e.g., metals, nutrients, and other conservative materials) and any solid waste, such as dead animals, placentas, waste feed, and sharps. Include spill response data sheets.

3-C-ii) Currently contained wastewater. Provide a wastewater analysis of the waste or wastewater currently contained in the waste management system using composite samples for overall characterization and grab samples that are representative of the most concentrated portions of the waste to determine areas of priority clean-up.

(3-D) Sampling, analysis, and monitoring plans. Sampling, analysis, and monitoring used before, during, and after closure shall be proposed to the county in a written plan as follows:

(3-D-i) Sampling and analysis plan. All sampling and analysis of the currently contained wastewater shall be performed according to a pre-approved written sampling and analysis plan developed using regulations for "pre-closure sampling".

(3-D-ii) Monitoring plan. All monitoring shall be performed according to a pre-approved written monitoring plan developed using regulations for "monitoring plan".

(3-D-iii) Sampling and monitoring locations. All sampling and monitoring locations shall be clearly indicated on a facility map accompanied with a description of the location of each site, purpose of each sampling and monitoring site, and duration of sampling and monitoring at each site.

(3-E) Treatment, removal, and disposal. The closure plan shall include the following minimum discussion of treatment, removal, and disposal activities, as well as any additional information required by the county or deemed necessary for clarification:

(3-E-i) Treatment. Describe all treatment methods to be used to treat or reduce any wastewater and/or sludge in the impoundment (e.g., chemical or physical treatment, phase separation, waste stabilization, or other method). Provide a written rationale for each treatment method to be used, the anticipated outcome of that treatment, and sufficient evidence of its effectiveness.

(3-E-ii) Removal. Describe all removal activities for all wastes, wastewaters, sludges, liner materials, and contaminated subsoils (e.g., volume to be removed, equipment used, dust control, spill response, containers, transport, and other activities).

(3-E-iii) Backfill. If the waste management system, part or in whole, is to be closed by backfilling with soil, estimate the volume of soil needed considering compaction and settling. Include discussion of the material used as backfill, its source, method of compaction, and other activities.

(3-E-iv) Disposal. Provide the name and location of all off-site facility(ies) to be used to dispose of materials removed from the site, including but not limited to piping and fittings, tanks, concrete, liner materials, appurtenances, construction debris, contaminated subsoils, wastes and wastewaters (both treated and raw waste), and provide the name of the issuing agency (if disposal permit is required), permit number or other information necessary to determine proper authorization can and will be obtained for such disposal.

(3-F) In-place closure requirements. In addition to the other requirements listed in these closure regulations, the following additional requirements shall apply for "in-place closure":

(3-F-i) Pollutants of concern. List the types and potential concentrations of the pollutants of concern that are or may be present in the wastes and wastewaters, sludges, and contaminated subsoils.

(3-F-ii) Alternatives. If the pollutants cannot be physically removed in total or must otherwise be closed in place, the closure plan shall include a discussion of remediation alternatives evaluated prior to the decision to use "in-place closure" (i.e., closing with some portion of the pollution in-place). Typical alternatives include: clean closure, waste reduction, or chemical, physical, or biological treatment and documentation as to the effectiveness of each alternative.

(3-F-iii) Containment. Include a discussion of containment alternatives (e.g., waste stabilization, impervious cap, or other system of protecting waters of the state, public health and the environment) and documentation as to the effectiveness of the containment measure.

(3-F-iv) Partial remediation. Include a proposal of which remediation and/or containment alternative(s) will be implemented for each portion of the waste management system to be closed. Include sampling and analysis plan that will provide information about the type and concentration of pollutants left in the closed facility and portions thereof that are part of the waste management system closed.

(3-F-v) Post-closure activities. Include discussion of all post-closure activities, such as groundwater monitoring, surface water monitoring, water or land use restriction, or deed restrictions.

(3-G) Clean closure requirements. In addition to other requirements listed in these closure regulations, the following additional requirements shall apply for "clean closure":

(3-G-i) Pollutants of concern. List the types and potential concentrations of the pollutants of concern that are or may be present in the wastes and wastewaters, sludges, and contaminated subsoils.

(3-G-ii) Alternatives. Provide an evaluation of the feasibility of "clean closure" (i.e., complete removal all wastes and wastewaters, contaminated subsoils, liner materials, equipment, piping, concrete, etc. and insuring contaminated subsoils are at a level similar to background concentration or at a level that will not adversely impact the environment, waters of the state, or public health). Include a discussion of available technology to be used, extent of contamination, effectiveness of technology, and other decision factors.

(3-G-iii) Full remediation. Include a proposal of which remediation and/or containment alternative(s) will be implemented for each portion of the waste management system to be closed. Include sampling and analysis plan that will provide information about the type and concentration of pollutants left in the closed facility and portions thereof that are part of the waste management system closed.

(3-G-iv) Clean-up target. Discuss target clean-up level of pollutants of concern in the wastes and wastewaters, sludges, and contaminated subsoils, and the sampling and analytical methods to

be used to determine that clean closure has been achieved for the pollutants of concern.

(3-G-v) Post-closure activities. Include discussion of all post-closure activities, such as groundwater monitoring, surface water monitoring, water or land use restrictions, or deed restrictions.

10. **Permit conditions.** The county may impose any reasonable condition upon a state animal feeding operation permit including:

- a) Sampling, testing, and monitoring of the facilities or manure, process wastewater, or runoff.
- b) Prevention and abatement of nuisance conditions caused by operation of the facility.
- c) Record keeping and reporting.
- d) Compliance schedules for existing facilities needing upgrades to meet the requirements of this chapter.
- e) The operator must notify the county within thirty days of construction completion and provide certification from the engineer that construction of manure storage and water pollution control structures was completed according to designs provided with the application or subsequent approved changes.
- f) Permit review. The operating permit will be reviewed every 5 years. The review will encompass all provisions of the original permitting process.
- g) Ownership change. An operator of a facility that includes an animal feeding operation having a permit granted by this ordinance shall notify the county of the sale, or the transfer of the ownership of that operation.
- h) Operating change. An operator of a facility that includes an animal feeding operation having a permit granted by this ordinance shall notify the county of intent to include an alternate livestock type. The notice shall be given at least 120 days prior to the anticipated date of the change.

11. **Facility requirements.**

- a) An animal feeding operation shall be located, maintained, and operated in accordance with this ordinance, and its county animal feeding operation permit. In addition, best management practices shall be applied to prevent pollution of waters of the state.
- b) All concentrated animal feeding operations shall be located, maintained, and operated in accordance with this ordinance and its county animal feeding operation permit. In addition, best management practices shall be applied to prevent pollution of waters of the state.
- c) Operation and maintenance plan. Operators of animal feeding operations and concentrated animal feeding operations requiring a permit shall submit an operation and maintenance plan that indicates how the manure and process wastewater will be disposed of or recycled. The operator shall indicate how the manure and process wastewater will be managed to minimize the impact of odors on neighbors. This plan will be maintained in the facility.
- d) Nutrient management plan. A nutrient management plan shall be submitted and maintained in the facility.
- e) A closure plan will be submitted and maintained in the facility.
- f) Manure storage structures. All animal feeding operation requiring permits under this ordinance and all concentrated animal feeding operations requiring permits and which are constructed or expanded after June 15th, 2004, shall meet the following requirements:
 - 1) All facilities regulated under this ordinance shall have manure storage structures designed and constructed to store runoff from a 25-year, 24-hour rainfall event, except swine, chicken, turkey, and veal calf facilities which shall be designed and constructed to store runoff from a 100-year, 24-hour rainfall event. In addition, all facilities shall collect and store all manure, process wastewater and runoff for a minimum of two hundred and seventy days. No discharge is allowed from storage structures except overflow due to a chronic or catastrophic rainfall event in excess of those specified.

- 2) A groundwater site assessment is required for all manure storage structures.
 - 3) All manure storage structures shall be designed and maintained to withstand natural forces and to prevent impacts to waters of the state. The maximum seepage allowed from the storage structures shall not exceed one-sixteenth of an inch per day.
 - 4) Other manure storage structure requirement specified in this ordinance shall be met.
 - 5) The county may specify additional design or monitoring requirements as needed to ensure facilities will satisfactorily prevent pollution to waters of the state.
- g) **Liquid storage facilities.** Facilities that store liquid manure, process wastewater, or manure-contaminated runoff must meet the following requirements:
- 1) New facilities, expanding facilities significantly increasing their number of livestock, or those facilities that have not housed livestock within five years shall not be located over an unconfined glacial drift aquifer unless a variance is granted by the county.
 - 2) New facilities constructed after June 15th, 2004, or those with upgrades to water pollution control structures (other than minor repairs) shall be designed by or under the supervision of an engineer. After completion, the engineer shall certify that the construction was completed according to design plan.
 - 3) Other requirements specified by the county.
- h) **Odor management.** An operator shall manage a facility to minimize the impact of odors on neighbors and comply with the odor requirements of section 11 of NDCC Chapter 23-25, chapter 33-15-16 of NDAC Article 33-15, and any other requirements by the county.
- i) **Best management practices.** An operator is responsible for applying best management practices to ensure compliance with the requirements of this ordinance and the permit and to prevent pollution of waters of the state. The best management practices used shall be included in the operation and maintenance plan or in the nutrient management plan.

12. Record keeping and reporting requirements.

- a) The operator of an animal feeding operation shall record and maintain the following for a period of not less than three years: (1) any sampling, testing and monitoring results; (2) maintenance and inspection records; and (3) reports and data required by this ordinance and the permit. This period of record retention shall be extended if requested by the county or during the course of any unresolved litigation regarding the discharge of pollutants by the operation. The information shall be provided to county representatives upon request.
- b) Sampling, testing, and monitoring results; maintenance and inspection records; reports and data obtained by an operator shall be submitted to the county in accordance with the schedule prescribed in the county permit. Reports shall be submitted at least annually on the appropriate forms supplied by the county or in a manner specified by the county.

D. Purpose of setback distances. The purpose of setback distances includes but is not limited to, reducing impacts of odors on neighboring habitable structures, providing biosecurity to humans due to human-animal transferable disease, reducing impacts of air pollution other than odors on neighboring habitable structures (e.g., sulfur compounds, carbon monoxide, ammonia, dust, dander and other allergens), to minimize the potential for property value reduction due to the proximity of an existing habitable structure to a new or expanding confined animal feeding operation without due compensation, and to provide protection to wildlife refuges and public facilities.

1. The operator of a new animal feeding operation that has more than 1,000 animal units shall not locate or establish that operation:
 - a) Within a delineated source water protection area for a public water system. The source water protection areas for water supply wells include the entire wellhead protection area. For the surface-water intakes of public water systems, source water protection areas include all or portions of the surface water that supplies the water for the public water system, including all or portions of the surface-water's shoreline.

- b) Within 1,200 feet (365.6 meters) of a private ground water well which is not owned by the operator or within 1,500 feet (457.1 meters) of a public ground water well which does not have a delineated source water protection area.
- c) Within 1,000 feet (304.7 meters) of surface water which is not included in a source protection area.

2. Odor Setbacks

The operator of a facility for an animal feeding operation shall not locate that operation within the extra territorial zoning jurisdiction of an incorporated city. An owner of property shall locate and establish a residence, business, church, school, public park or zone for residential use so as to provide a separation distance from any existing animal feeding operation. The separation distances or setbacks are listed in the following table. An owner of property who is an operator may locate the owner's residence or business within the setbacks. County Commissioners may vary the setback distance after review of the permitting process. See definition 29(c) (Risk Classification).

Setback Distance for Animal Feeding Operation

	ANIMAL UNITS	HOG OPERATIONS	OTHER ANIMAL OPERATIONS
Established Residence	Less than 300	None	None
	300 to 1,000	1 Mile	1 Mile
	1,001 to 10,000	1 1/2 Mile	1 Mile
	More than 10,000	2 miles	2 Miles
Churches, businesses, Commercially Zoned Areas, Recreational Area, Schools	Less than 300	None	None
	300 to 1,000	1 Mile	1 Mile
	1,001 to 10,000	1 1/2 Miles	1 Mile
	More than 10,000	2 Miles	2 Miles
Incorporated City Limits and Unincorporated Platted Limits	Less than 300	None	None
	300 to 1,000	2 Miles	2 Miles
	1,001 to 10,000	2 1/2 Miles	2 Miles
	More than 10,000	3 Miles	3 Miles
Federal or State Highway ROW	Less than 300	None	None
	300 to 1,000	150 feet	150 feet
	1,001 to 10,000	150 feet	150 feet
	More than 10,000	150 feet	150 feet
County Road ROW and Adjacent Property Lines	Less than 300	None	None
	300 to 1,000	150 feet	150 feet
	1,001 to 10,000	150 feet	150 feet
	More than 10,000	150 feet	150 feet

E. Public Participation

- 1. All orders of rulemaking referenced in this Ordinance shall be adopted only pursuant to state laws governing administrative rules and regulations, with full public review and comment and public hearings upon draft rules.
- 2. Upon submission of an application for a construction permit and waste management plan, there shall be a public notice in a county newspaper of general circulation, and by personal notice to all landowners within a three mile radius of the concentrated animal feeding operation. The public notice shall include at a minimum the location and animal capacity of the facility, general construction design and waste management features

and a topographical map of the land application sites. The complete permit application and waste management plan shall be available for public viewing at the public library in the county and at the office of the county clerk; this availability shall be stated in the public notice. The applicant shall pay for all costs associated with the public notice provision.

3. A reasonable period shall be provided for public comment on the waste management plan and the construction permit application - such period shall be no less than 30 days. These comments shall be shared with the applicant, and the applicant may be given the opportunity to revise the design and waste management plans as a result of the public comments. The county shall issue a written report on all significant public comment and shall indicate how the public comments effected decisions to approve, reject, or modify the permit application.
4. The county may hold a single public hearing upon the written requests of 20 impacted voting citizens, and shall follow the same procedures as in 3 above.

ARTICLE 3 - DISTRICTS AND BOUNDARIES

SECTION 1. ESTABLISHMENT OF DISTRICTS: In order to effectively carry out the provisions of these regulations, the land covered by the jurisdiction of these regulations shall be divided into the following zoning districts:

"AG" Agriculture District

"RR" Rural Residential District

"CO" Commercial District

"IN" Industrial District

"RE" Rural Recreational District

SECTION 2. ZONING MAP: The location and boundaries of the zoning districts are hereby established as shown on the maps attached and made a part of this ordinance. The maps shall be kept on file with the zoning administrator and shall be regularly updated to show any change in the zoning boundary lines resulting from amendments.

SECTION 3. INTERPRETATION OF BOUNDARIES: The following rules shall apply to the boundaries of the zoning districts on the zoning district maps.

- A. Where zoning district boundaries follow streets, highways, roads, railroad lines, or extensions thereof, such boundary lines shall be centerline of those streets, highways, roads, railroad lines or extensions thereof.
- B. Zoning district boundaries indicated as approximately following platted lot lines or other property lines shall be construed to follow such lines or extensions thereof.
- C. Zoning district boundaries which do not follow streets, highways, roads, railroad lines, property lines, or lot lines, or extensions thereof shall be determined by the use of a scale or dimensions appearing on the map.

SECTION 4. AGRICULTURAL DISTRICT (AG).

- A. Intent and Purpose – This district is established for the Intent purpose of preserving and protecting agricultural uses and other natural land uses in the County.
- B. Permitted Uses – The following uses shall be permitted in this district:
 1. Agriculture and agriculture related buildings and farm dwellings, provided such use are maintained in connection with a farm or farming operation where the primary source of the operator's income is derived from farming-no permit is needed
 2. Park and outdoor recreational facilities and related buildings for outdoor recreation.
 3. Single-family non-farm dwellings (subject to the Residential Guidelines of this section).

4. Churches and similar places of worship and parish homes.
 5. Greenhouses, nurseries, and garden centers.
 6. Hobby farms, whether or not there is a dwelling on the same site or contiguous to the site. If there is a dwelling (either farm or non-farm) associated with the site it is subject to the Residential guidelines of this section.
 7. Bed and Breakfast facilities.
 8. Wind power generation facilities and towers as described in Section 12 of Article II herein.
- C. Conditional Uses – The following uses shall be considered conditional uses and shall be permitted only after conditional use permit has been obtained in accordance with these zoning regulations.
1. Mineral extraction and exploring (including sand and gravel) subject to the requirements of Article 2, Section 7 of these regulations.
 2. Multiple family, non-farm dwellings.
 3. Mobile Home Parks.
 4. Animal Feeding Operations.
 5. Radio or TV Towers, utility lines, wind generator towers, substations and pipelines subject to the requirements of Article 2, Section 6 of these regulations.
 6. Commercial grain elevators
 7. Cemetery.
 8. Junk yards, auto wrecking yard or salvage yard provided that all operations are conducted within an area enclosed on all sides with a solid fence or wall not less than eight (8) feet in height.
 9. Retail agriculture chemical and fertilizer outlets.
 10. Bulk storage of chemicals.
 11. Wind power generation facilities and towers not consistent with Section 12 of Article II herein.
- D. Prohibited Uses – Land uses which are not listed in this section as a permitted use or as a conditional use shall be considered a prohibited use and shall not be allowed in this zoning district without following the amendment or variance procedures of these regulations.
- E. Shelter Belts – No shelterbelts or major tree plantings shall be established closer than 115 feet for planting on the windward side (generally north and west) and 99 feet for planting on the south and east. This is to be measured from all section lines and the centerline of all improved and unimproved roads.
- F. Residential Development – The following regulations shall be applied to the construction of individual non-farm dwelling units. (The terms of lot size and density shall exclude the immediate family of the surface owner).
1. Lot Size - Not less than three acres.
 2. Lot Density - Not more than one non-farm dwelling per 40 acres.
 3. Lot Location - The development and location of all lots related to non-farms shall provide their own access to an existing improved road. (An improved road is one which is gravel or hard surfaced and is regularly maintained in good driving condition.)

G. Dimensional Standards

1. Building and Structure Setbacks - 100 feet from all section lines and the centerline of all townships and county roads and/or 250 feet from the centerline of all state and federal highways.

SECTION 5. RURAL RESIDENTIAL DISTRICT (RR):

- A. Intent and Purpose - This district is established for the purpose of providing for and guiding the development of any rural subdivisions and for preserving and protecting the character of residential areas in unincorporated villages in Towner County

- B. Permitted Uses - the following uses shall be permitted in this district:

1. All single family dwellings.
2. Multiple family dwellings.
3. Parks and outdoor recreational facilities and related buildings for outdoor recreation.
4. Churches and facilities related to religious activities.
5. Public and parochial schools.
6. Utility facilities necessary to serve the area.

Conditional Uses - The following uses shall be considered conditional use and shall be permitted only after a conditional use permit has been obtained in accordance with these zoning regulations.

1. Mobile Home Parks.
2. Home occupations, including Bed and Breakfast facilities.

- C. Prohibited Uses - Land uses which are not listed in this section as a permitted use or as a conditional use shall be considered a prohibited use and shall not be allowed in this zoning district without following the amendment or variance procedures of these regulations.

E. Dimensional Standards:

1. Lot size - not less than 5,000 square feet if served by a sewer collection systems common to other adjoining users; not less than three acres if the sewer is drained into an on site user owned drainage field.
2. Setbacks:
 - a. Front yard - 20 feet from lot line or 100 feet from the centerline if abutting a federal, state, county or township road.
 - b. Side yard - 20 feet from lot line or 100 feet from the centerline if abutting a federal, state, county or township road.
 - c. Rear yard - 20 feet from lot line or 100 feet from the centerline if abutting a federal, state, county or township road.
 - d. Shoreline - 100 feet from highest water level shoreline accessory buildings and uses (such as boathouses, personal storage units, ramps, docks, and retaining walls).

SECTION 6. COMMERCIAL DISTRICT (CO):

- A. Intent and Purpose - This district is established for the purpose of allowing commercial areas adjacent to highways and for the grouping together of retail and service businesses in areas to best serve the

needs of persons traveling in the county and to also provide area residents convenient access to those entities.

- B. Permitted uses - Generally any commercial retail or service business which may include but is not limited to the following:
1. Automobile/truck sales, supply, service, and repair.
 2. Service Stations, bulk fuel sales.
 3. Grocery and convenience stores.
 4. Farm implement sales, supply, service, and repair.
 5. Motels, hotels, or lodging establishments.
 6. Public buildings and churches.
 7. Parks and playgrounds.
 8. Restaurants, lounges, and liquor stores.
 9. Banks and other savings and lending institutions.
 10. Apparel, department, clothing, toy, variety, furniture, hardware, and other retail establishments.
 11. Medical, dental, health, and veterinary clinics.
- C. Conditional Uses - The following uses shall be considered conditional uses and may be permitted only after a conditional use permit has been obtained in accordance with these zoning regulations.
1. Commercial grain elevators.
 2. Welding shops.
 3. Wholesale supply and warehouse storage facilities.
 4. Storage facilities for building materials, such as lumber, steel, concrete blocks or pipe; provided that these materials are either:
 - a) Enclosed by a wall or fence not less than five feet high or,
 - b) stored in an enclosed structure.
 5. Retail agriculture chemical and fertilizer outlets.
- D. Prohibited Uses - Land uses which are not listed in this section as a permitted use or as a conditional use shall be considered a prohibited use and shall not be allowed in this zoning district without following the amendments or variance procedures of these regulations.
- E. Dimensional Standards:
1. Lot size - not less than 5,000 square feet if served by a sewer collection system common to other adjoining users; not less than three acres if the sewer is drained into an on site user owned drainage field.
 2. Setbacks - No minimum setbacks, except in the case of the property abutting a federal, state, county, or township road. If the property abuts a federal, state, county, or township road, building setbacks shall be a minimum of 100 feet from the centerline of that road.

3. Lot coverage by buildings - No requirements other than those that may exist with regard to fire protection.

SECTION 7. INDUSTRIAL DISTRICT (IN)

- A. Intent and Purpose - This district is intended to provide areas for industrial development and those land uses which are generally not compatible with agriculture, commercial, or residential land uses.
- B. Permitted Uses - The following uses shall be permitted in this district.
 1. All Commercial (CO) Districts permitted uses.
 2. Airports, railroads, essential public utilities, and public service installations.
 3. Radio and television transmitting stations.
 4. Overhead, above grade and underground storage facilities for oil, gas, flammable liquids and gases, as approved by Fire Code regulations.
 5. Manufacturing industries.
 6. Processing industries consisting of agricultural products and foodstuffs.
 7. Concrete mixing and concrete product manufacturing plants.
- C. Conditional Uses - The following uses shall be considered conditional uses and may be permitted only after a conditional use permit has been obtained in accordance with this ordinance:
 1. Petroleum or petroleum products refining.
 2. Junk yard, auto wrecking yard or salvage yard provided that all operations are conducted within an area enclosed on all sides with a solid fence or all not less than eight (8) feet in height.
 3. Commercial bulk storage of chemicals.
- D. Prohibited Uses - Land uses which are not listed in this section as a permitted use or as a conditional use shall be considered a prohibited use and shall not be allowed in this zoning district without following the amendment or variance procedures of these regulations.
- E. Dimensional Standards
 1. Lot size - No minimum standard.
 2. Setbacks - No minimum setbacks, except in the case of the property abutting a federal, state county, or township road. If the property abuts a federal, state, county, or township road, building setbacks shall be a minimum of 100 feet from the centerline of the road.
 3. Lot coverage by buildings - No requirements other than those that may exist with regard to fire protection.

SECTION 8. RURAL RECREATION DISTRICT (RE)

- A. Intent and Purpose of District - The "RE" Rural Recreational District is established for the Purpose of protecting general farm operations and providing areas for the establishment of permanent recreational residential developments, small rural vacation or seasonal residential developments, recreational vehicle parks for short term or seasonal parking and the uses that serve them by restricting and regulation density, land coverage and land use.

B. Permitted Uses:

1. General farm operations - This shall not include or permit:
 - a. The spreading, accumulation, feeding or use of garbage in any form on the surface of the land.
 - b. Any activity within 300 feet of an "RE" District which is noxious or offensive by reason of dust, odor, or noise.
2. Single family lake cabins and cottages.
3. Utility facilities necessary to serve the area.
4. Golf courses, except miniature golf courses and driving tees operated for commercial purposes.
5. Park, playground, or community buildings.
6. Customary accessory uses and structures located on the same tract with the principal use.
7. Temporary structures incidental to construction work, but only for the period of such work. Basements and cellars may not be occupied for residential purposes until the building is complete.

C. Conditional Uses - The following uses shall be considered conditional uses and may be permitted only after a conditional use permit has been obtained in accordance with this ordinance:

1. Any public building erected on land used by any department of the City, County, State or Federal Government.
2. Airports and heliports.
3. Churches.
4. Cemetery.
5. Commercial lake resort.
6. Boat livery, including boat docks, sales, rental, construction and repair and sale of bait and fishing equipment, fuel. Etc.
7. Commercial campgrounds (tent and/or recreational vehicle).
8. Recreational vehicle park, two or more acres in area.
9. Camps and campgrounds operated by non-profit charitable institutions.

D. Prohibited Uses - Land uses which are not listed in this section as a permitted use or as a conditional use shall be considered a prohibited use and shall not be allowed in this zoning district without following the amendment or variance procedures of these regulations.

E. Dimensional Standards:

1. Lot size - lot width shall not be less than 100 feet and lot depth shall not be less than 150 feet. All structures shall conform to the North Dakota health regulations as they refer to wells, irrigation, septic, and sanitary systems.

2. Setbacks:

- a. Front yard - 20 feet from lot line, or 45 feet from two-way traffic roadway centerline or 33 feet from one-way traffic roadway centerline.
- b. Side yard - 20 feet from lot line, or 45 feet from two-way traffic roadway centerline or 33 feet from one-way traffic roadway centerline.
- c. Rear yard- 20 feet from lot line, or 45 feet from two way traffic roadway centerline or 33 feet from one-way traffic roadway centerline.
- d. Shoreline - 50 feet from any shoreline excepting accessory buildings and uses (such as boathouses, personal storage units, ramps, docks, and retaining walls).

ARTICLE 4 - ADMINISTRATION AND ENFORCEMENT

SECTION 1. PLANNING COMMISSION: The administration and enforcement of these Zoning Regulations is hereby vested in the Planning Commission of Towner County. Members of the Planning Commission shall be appointed by the County Commission in accordance with State Statutes. Duties of the Planning Commission shall include.

- A. Issuance of all permits.
- B. Inspection for permit compliance in accordance with these zoning regulations.
- C. Maintenance of the records for the regulations and permits.
- D. Collection of any fees instituted by the County Commission in the administration of the ordinance.
- E. Interpret district boundaries on the Official Zoning Map.
- F. Establishment of rules, regulations, and procedures for the purpose of administering these zoning regulations.
- G. Periodic review of the provisions of these regulations.
- H. Conduct public hearings on conditional use permits, variance permits, regulation amendments, and any other business pertaining to these zoning regulations which may require a public hearing.
 - 1) Administrative Review Committee: the Planning Commission President may appoint an Administrative Review Committee that has the authority to conduct public hearings and render decisions regarding those issues that require a public hearing and are routine in nature. This provision does not preclude the full Planning Commission from conducting public hearings on those occasions where it is deemed necessary by any Planning Commissioner or County Commissioner.
- I. The Planning Commission shall serve as an advisor to the County Commission and make recommendations regarding the implementation of these Zoning Regulations. The County Commission shall have final review of Planning Commission decisions with regard to conditional use permits, variance permits, and zoning regulation amendments.
- J. The Planning Commission may request the County Commission to officially appoint a Zoning Administrator to conduct the business of the Planning Commission for any part of the above mentioned duties.

SECTION 2. BOARD OF ZONING APPEALS: A board of Zoning Appeals is hereby created. Such Board shall consist of County Commission and shall have the authority to grant variances to these regulations.

- A. Records - The Board shall keep minutes of its proceedings, show evidence presented, finding of fact by the Board, decisions of Board, and voting upon each question. Records of all official actions of the Board shall be filed in the office and shall be a public record.
- B. Public Hearing and Notice - the Board of Zoning Appeals shall within thirty days of filing fix a date of the hearing of an appeal. Notice of the time, place and subject of such hearing shall be published once in the official county newspaper at least ten days prior to the date fixed for the hearing. A copy of said notice shall be mailed to each party to the appeal.
- C. Powers and Jurisdiction - The Board of Zoning Appeals shall administer the details of appeals or other matters referred to it regarding the application of the zoning regulations. The Board shall have the following specific powers:
 - 1. To hear and decide on appeals where it is alleged that there is error in any order, requirement, decision, or determination made by the planning commission in the enforcement of the zoning regulations.
 - 2. To interpret the provisions of these regulations in such a way as to carry out the intent and purpose of the adopted comprehensive plan and as shown upon the zoning district maps.
 - 3. The concurring vote of three-fourths of all members of the Board shall be necessary to reverse any order, requirement, decision, or determination of the planning commission, or to decide in favor of the applicant any matter upon which it is required to pass under this ordinance or to affect any variation of these regulations.
- D. Procedure - The appeals process is outlined below:
 - 1. Appeals to the Board of Zoning Appeals may be taken by any person aggrieved, by any officer of the County or by any governmental agency or body affected by any decision of the official administering the provisions of these zoning regulations.
 - 2. Appeals shall be taken with 30 days of filing provided by the rules of the Board, by filing a notice of appeal specifying the grounds thereof and payment of the required filing fee.
 - 3. The Board of Zoning Appeals shall advertise and hold a public hearing as required in Section 2.2 of this Article.
 - 4. Notice of the decision of the Board of Zoning Appeals shall be in writing and transmitted within 15 days to the appellant. A copy of such decision shall also be transmitted to the official administering the regulations for action, if action is required.

SECTION 3. BUILDING PERMITS: No building or structure, other than those associated with the normal incidents of agriculture, shall be erected, moved, added to, or structurally altered without a building permit. No building permit shall be issued except in conformity with the provisions of this ordinance unless a written order has been received from the County Commission in the form of a conditional use or variance, or the Board of Zoning appeals in the form of an administrative review, as provided by this ordinance. No permit is required for maintenance of any building or structure, which does not structurally alter the building. If no construction takes place in a year from the issuance of a building permit, the permit shall expire.

- A. Procedure - The building permit process is outlined below:
 - 1. All applicants who wish to build or alter any structure as defined in these zoning regulations must apply to the Planning Commission for a permit.

- B. If the applicant's plans meet district regulations as prescribed in these zoning regulations and any other applicable ordinances, the Planning Commission or designated Zoning Administrator collects any applicable fees and issues the building permit.
- C. If the applicant's plans do not comply with district regulations, the amendments, variance, conditional use procedures, or appeals sections of these regulations may be applied.

SECTION 4. CONDITIONAL USE PERMITS

- A. Requirements for Conditional Uses - A conditional use permit may be granted following compliance with the procedure set forth in this section (if the conditional use is one set forth in the District Regulations), provided that no application for a conditional use shall be granted unless all of the following conditions are found to be present:
 - 1. The conditional use will not be detrimental to or endanger the public health, safety or general welfare.
 - 2. The existing permitted uses in the area will not be substantially impaired or diminished by the establishment of the conditional use.
 - 3. The conditional use will not impede the normal and orderly development of the surrounding property for uses permitted in the district.
 - 4. Adequate utilities, access roads, drainage, and other necessary site improvements have been or are being provided.
 - 5. Adequate measures have or will be taken to provide access and exit so designed as to minimize traffic congestion in the public roads and streets.
 - 6. The conditional use shall conform to all provisions of the district in which it is located.

The Conditional Use Permit may be issued for a specified period of time with automatic cancellation at the end of time unless it is renewed, or conditions may be applied to the issuance of the Permit and periodic review may be required to determine if the conditional use has any detrimental effects on neighboring uses or district. The Permit shall be granted for a particular use and not for a particular person or firm.

- B. Applications - Application for a Conditional Use Permit shall be submitted by the property owner to the Planning Commission. The application shall include:
 - 1. The name and address of the applicant.
 - 2. The date of the application.
 - 3. A description of the site and the immediate surrounding area.
 - 4. A preliminary map showing boundary lines and location of structures.
 - 5. Location of existing structures on adjacent property.
 - 6. Parking plans showing off street parking areas and/or loading areas.
 - 7. Names and addresses of adjacent property owners.
 - 8. Any reasonable information the Planning Commission deems necessary.

I. Payment of the required filing fees.

- C. Planning Commission Recommendation - The Planning Commission, upon receipt of an application for a conditional Use Permit that has specified improvements or actions valued in excess of \$15,000, shall at its regular or special meeting, specify a time and date within the next 30 days for a public hearing, the Planning Commission shall consider the application and make a recommendation to the County Commission within 30 days. An application for a Conditional Use Permit that has specified improvements or actions valued at less than \$15,000 may be issued by the Zoning Administrator without a public hearing if the requirements of Section 4.1 are met.
- D. Public Hearing and Notice - The Planning Commission shall publish a notice of the public hearing in the official county newspaper at least ten days before the hearing. Notice shall include the date, time, place, and purpose of the hearing. In addition to the published notice, the Planning Commission may require that the notice be mailed to those persons designated by the Planning Commission.
- E. County Commission - Upon receipt of the Planning Commission's recommendations, the County Commission may either grant the proposed conditional use, grant the proposed conditional use with additional conditions, or deny the proposed conditional use.

SECTION 5. VARIANCE PERMITS: To permit a variation in the yard, setback and height requirements of any district where there are practical difficulties or unnecessary hardships in the carrying out of these provisions due to an irregular shape of lot, or topographical or other conditions, provided such variation will not seriously affect any adjoining property of the general welfare, or where variations may be permitted which allow unusual arrangement on the lot and still clearly and unmistakably accomplish the intent of these regulations. The Board must find that the granting of such variance will not merely serve as a convenience to the applicant, but will alleviate some demonstrable or unusual hardship or difficulty.

The Variance Permit may be issued for a specified period of time with automatic cancellation at the end of that time unless it is renewed, or conditions may be applied to the issuance of the Permit and periodic review may be required to determine if the variance has any detrimental effects on neighboring uses or districts. The permit shall be granted for a particular use and not for a particular person or firm.

- A. Applications - Application for a Variance Permit shall be submitted by the property owner to the Planning Commission on forms provided by the Commission. The application shall include:
1. The name and address of the applicant.
 2. The date of the application.
 3. A description of the site and the immediate surrounding area.
 4. A preliminary map showing boundary lines and location of structures.
 5. Location of existing structures on adjacent property.
 6. Parking plan showing off street parking areas and/or loading areas.
 7. Names and addresses of adjacent property owners.
 8. Any reasonable information the Planning Commission deems necessary.
 9. Payment of the required filing fee.
- B. Planning Commission Recommendation - The Planning Commission, upon receipt of an application for a Variance Permit that has specified improvements or actions valued in excess of \$15,000, shall at its regular or special meeting, specify a time and date within the next 30 days for a public hearing for the proposed variance use.

Following the public hearing, the Planning Commission shall consider the application and make a recommendation to the County Commission within 30 days.

- C. Public Hearing and Notice - The Planning Commission shall publish a notice of the public hearing in the official county newspaper at least ten days before the hearing. Notice shall include the date, time, place, and purpose of the hearing. In addition to the published notice, the Planning Commission may require that the notice be mailed to those persons designated by the Planning Commission.
- D. County Commission - Upon receipt of the Planning Commission's recommendations, the County Commission may either grant the proposed conditional use, grant the proposed conditional use with additional conditions, or deny the proposed conditional use.

SECTION 6. AMENDMENTS: The County Commission may from time to time amend, supplement, or change the district boundaries or regulations contained in these zoning regulations. A proposal for an amendment or a change in zoning may be initiated by the County Commission, by the Planning Commission, or upon application of the owner of the property affected:

- A. Applications - The party desiring any change in zoning district boundaries or zoning regulations as to any lot, tract, or area of land, shall file with the Zoning Administrator an application upon forms provided, and such application shall be accompanied by such data and information as may be prescribed by the Planning Commission.
- B. Public Hearing and Notice - Before the Planning Commission shall, by proper action, formulate its recommendation to the County Commission on any such proposed or requested change of zoning district boundary or regulation, whether initiated by the County Commission, the Planning Commission, or by the property owner, the Planning Commission shall hold a public hearing on such a proposal. The Planning Commission shall cause a notice of public hearing to be published once a week for two successive weeks prior to the time set for the said hearing in the official county newspaper. Such notices shall contain:
 - 1. The time and place of the hearing.
 - 2. A description of any property involved in any zoning change, by street address and/or other legal description.
 - 3. A description of the nature, scope and purpose of the proposed regulation, restriction, or boundary.
 - 4. A statement of the times at which it will be available to the public for inspection and copying at the office of the County Auditor.
- C. County Commission Approval - Upon receipt of the recommendation of the Planning Commission on any amendment, or in the event of the failure of the Planning Commission to so report after 30 days from the time of the filing of the proposed amendment to the Planning Commission, the County Commission shall hold a public hearing. Notice of the public hearing shall be published once a week for two successive weeks prior to the time set for said hearing. The notice shall contain the same information required for the Planning Commission public hearing listed in Section 6.2 of this Article. A majority decision of the County Commission shall be sufficient to approve an amendment of the zoning regulations.

SECTION 7. CERTIFICATE OF COMPLIANCE

- A. A Certificate of compliance is required before any structure, building or land can be occupied which has been built or structurally altered such as it requires a building permit.
- B. The certificate of compliance process is outlined below:
 - 1. Upon notification of completion of any work requiring a building permit, the Planning Commission or its designee conducts an on site inspection of the work specified on the building permit.

2. If the completed work is found to be in accordance with the zoning ordinance, the Planning Commission will issue a certificate of compliance.
3. Reasons for refusing to issue a certificate of compliance must be stated by the Planning Commission in writing within 15 days after the request of the applicant for the certificate. Notice of such refusal shall be sent in writing to the applicant within one week after such refusal is made.

SECTION 8. SCHEDULE OF FEES AND CHARGES: The County Commission shall establish a schedule of fees, charges, and a collection procedure for permits, appeals, and other matters pertaining to these regulations. The schedule of fees shall be posted in the office of the Zoning Administrator and may be altered or amended only by the County Commission. Until all applicable fees, charges, and expenses have been paid in full, no action shall be taken on any application or appeal.

- A. Building Permits - A building permit is required for all new construction or anything that alters the structural shape or integrity of the lot, excluding decks, porches, and fences. The following schedule shall be used for issuing building permits:
 1. Residential \$50.00.
 2. Commercial \$100.00.
- B. Other permits and hearings - A fee of \$150.00 shall be paid by the applicant upon filing an application for an amendment, conditional use permit, variance permit, or any other activity which requires an advertised public hearing.

SECTION 9. PENALTIES

- A. Enforcement - The County Sheriff and the Sheriff's staff shall enforce these zoning regulations. Appeal from the decision of the Sheriff may be made to the County Commission.
- B. Complaints - Any person may file a written and signed complaint whenever a violation of these regulations occurs, or is alleged to have concurred. Such a complaint shall state the cause and basis thereof and be filed with the County Sheriff. The County Sheriff shall record the complaint, promptly investigate, and take action thereon as provided by these regulations.
- C. Violations - If any building or structure is erected, reconstructed, altered, enlarged, converted, or moved, or any building, structure, or land is used in violation of these regulations, the County Sheriff shall order in writing, the correction of such violation. The County Sheriff, States Attorney, or other official designated by the County Commission, may institute appropriate action of proceedings for the purpose of:
 1. Prosecuting any violation.
 2. Restraining, correcting, or abating such violation.
 3. Preventing the occupancy of any building, structure, or land in violation of these regulations.
 4. Preventing any illegal act, conduct business, or use in or about any buildings, structure or land in violation of these regulations.
- D. Penalty - Any persons, firm, or corporation violating the provisions of these regulations shall constitute the maintenance of a public nuisance and shall be a Class B misdemeanor. Nothing herein contained shall prevent the County from taking such other lawful action to prevent or remedy any violation of the zoning regulations.

ARTICLE 5 - DEFINITIONS

SECTION 1. RULES: For the purpose of these regulations, the following rules shall apply:

- A. Words used singularly shall include the plural. Words used in the plural form shall include the singular. Words used in the present tense shall include the future.
- B. The word "persons" includes a corporation, members of a partnership, a business organization, a committee, board, trustee, receiver, agent, or other representative.
- C. The word "shall" is mandatory. The word "may" is permissive.
- D. The word "including" shall mean including, but not limited to.

SECTION 2. DEFINITIONS: The following words, terms, and phrases are hereby defined and shall be interpreted in the same fashion throughout these regulations. Terms not herein defined shall have the meaning customarily assigned to them.

Access. A way of means of approach to provide physical entrance to property.

Accessory Buildings and Uses. A subordinate building or portion of the main building, the use of which is incidental to that of the main building or to the main use of the premises. An accessory use is one which is incidental to the main use of the premises.

Agriculture. The production, keeping, or maintenance, for sale, lease, or personal use, of plants and animals useful to man, including but not limited to: forages and sod crops; grains and seed crops; dairy animals and dairy products; poultry products; livestock, including beef cattle, sheep, swine, horses, ponies, mules, or goats, or any mutation or hybrids thereof, including the breeding and grazing of any or all of such animals; bees and apiary products; fur animals; trees and forest products; fruit of all kinds including grapes, nuts, and berries; vegetables, nursery, floral, ornamental, and greenhouse products; or lands devoted to a soil conservation or forestry management program.

"Animal feeding operation" means a place where livestock have been, are, or will be confined, concentrated and fed for 45 days in any 12 month period, pasture, crops, or other vegetation, are not normally managed or sustained for grazing during the normal growing season; and, animal waste or manure accumulates. This term does not include an animal wintering operation. Adjoining animal feeding operations under common ownership are considered to be one animal feeding operation, if they use common area or system for manure handling.

"Animal Wintering operation" means the confinement of cattle or sheep used or kept for breeding purposes in a feedlot or sheltered area at any time between October 15 and May 15 of each production cycle under circumstances in which these animals do not obtain a majority of their feed and nutrients from grazing. The term includes the weaned offspring of cattle and sheep, but it does not include (1) breeding operations of more than 1000 animal units or (2) weaned offspring which are kept longer than 120 days and that are not retained.

Airport. A place where aircraft can land and take off, usually equipped with hanger, facilities for refueling and repair and various accommodations for passengers.

Alteration. Any change or rearrangement in the supporting members of an existing building, such as bearing walls, columns, beams, girders, or interior partitions; any change in doors, windows, or any enlargement to or diminution of a building or structure, whether horizontally or vertically; or the moving of a building or structure from one location to another.

Animal Feeding Operation. Any building, structure, enclosure, or premises used, designed, or intended for the concentrated feeding or fattening of livestock for more than 45 days in any 12 month period for marketing and which less than 50% of the feed is raised by the owner and which animal waste or manure accumulates and is a separate pursuit to the normal incidence of farming. Adjoining animal feeding operations under common ownership are considered to be one animal feeding operation, if they use common areas or systems for manure handling.

Building. A structure having a roof supported by columns or walls.

Conditional Use. A use which generally would not be suitable in a particular zoning district, which would be acceptable under certain circumstances. The permit shall be granted for a particular use and not for a particular person or firm

County Commission. Shall mean the Towner County Commission.

Dwelling. Any building or portion thereof, which is designed and uses exclusively for residential purposes.

Dwelling, Non-farm. A single family dwelling or mobile home located on a farm or otherwise of which the occupant does not derive at least 50% of their income from agricultural activities.

Farm. Farm means a single tract or continuous tracts of agricultural land containing a minimum of ten acres and which normally provides a farmer, who is actually farming the land or engaged in the raising of livestock of other similar operation normally associated with farming and ranching, with their source of primary annual income.

Hobby Farm. Means any agriculture and agriculture related farm buildings, where the uses are not maintained in connection with a normal farm or farming operation and does not provide the surface owner with his/her source of primary annual income, but is operated as a pursuit of pleasure.

Farmer. Means any individual who normally devoted the major portion of their time to the activities of producing products of the soil, poultry, livestock, or dairy farming and such products, and who normally receives not less than 50% of their annual net income from any one or more of their foregoing activities (as defined in North Dakota Century Code 57-02); and the term also includes an individual who is retired because of illness or age and who at the time of retirement owned or occupied as a farmer, as above defined the residence in which they live and which is exempt from taxation pursuant to the laws of North Dakota.

Home Occupations. An occupation or activity carried on in a residential dwelling and provides the occupant with their primary source of annual income.

Junk Yard. An area of more than two hundred square feet, or any area not more than fifty feet from any street, used to for the storage, keeping processing or abandonment of junk, including scrap metals or other scrap materials or goods used for dismantling, demolition, storage or abandonment of automobiles or other vehicles or machinery, or parts thereof.

Livestock. Domestic animals or types customarily raised or kept on farms for profit or other purposes.

Lot. A piece, plot, or area of land, or contiguous assemblage as established by survey, plat, or Deed, occupied or to be occupied by a building, or a unit group of buildings, and/or accessory buildings thereto or for other use, together with such open spaces as may be required under these regulations and having its frontage on a street or officially approved place.

Mineral Exploration/Production. Any activity, use or technique which when applied to the surface of the land, will aid in the discovery, evaluation of production of coal, oil, gas, potash, sand, gravel, and/or rock, or other subsurface minerals as defined in North Dakota Century Code 38-12.

Nonconforming Uses. Use of a building or of land that does not conform to the regulations as to use for the district, which it is situated.

Park. A tract of land designated and used by the public for active and passive recreation.

Permitted Use. Any use allowed in a zoning district and subject to the restrictions applicable to that zoning district.

Planning Commission. The Planning Zoning Commission of Towner County, North Dakota.

Prohibited Uses. A use not permitted in a zone district.

Public Hearing. A meeting announced and advertised in advance and open to the public, with the public given an opportunity to talk and participate.

School. Any building or part thereof, which is designed, constructed, or used for education or instruction in any branch of knowledge.

Setback. The open space extending the full width of a lot between a building and a public right of way line, easement or property line.

Shelter Belt. A barrier of trees and shrubs that is used to protect crops, farmsteads and non-farm dwellings from wind and storms.

Sign. Any surface, fabric, device, or display, which bears lettered, pictorial, or sculptured matter, including forms shaped to resemble any human, animal, or product, designed to convey information visually and which is exposed to public view. For purposes of these regulations, the term "sign" shall include all structural members. A sign shall be constructed to be a display surface or device containing organized and related elements composed to form a single unit. In cases where matter is displayed in a random or unconnected manner without organized relationship of the components, each such component shall be considered to be a single sign.

Billboard. A sign, which directs attention to a business, commodity, service, or entertainment conducted, sold, or offered at a location other than the premises on which the sign is located.

Bulletin Board. A sign, which identifies an institution or organization on premises of which it is located and which contains the name of the institution or organization, the names of individuals connected with it, and general announcements of events or activities occurring at the institution or similar messages.

Illuminated. A sign lighted by or exposed to artificial lighting either by lights on or in the sign (directly illuminated), or directed toward the sign (indirectly illuminated).

Marquee. Any sign attached to and made part of a marquee. A marquee is defined as a permanent roof like structure projecting beyond the building's wall and generally designed and constructed to provide protection against the weather.

Portable. A sign that is not permanent, affixed to a building, structure, or the ground.

Roof. A sign that is mounted on the roof of a building, or which is wholly dependent upon a building for support and which projects above the point of a building with a flat roof, the eave line of a building with a gambrel, gable, or hip roof, or the deck line of a building with a mansard roof.

Temporary. A sign or advertising display constructed of cloth, canvass, fabric, plywood, or other light material and designed or intended to be displayed for a short period of time.

Wall. A sign fastened to or painted on the wall of a building or structure in such a manner that the wall becomes the supporting structure for, or forms the background surface of the sign, and which does not project more than 12 inches from such building or structure.

Street. Any thoroughfare or public space, which has been dedicated to, and accepted by the public for public use, and includes all the right-of-way sidelines.

Structure. Anything constructed or erected, the use of which requires permanent location on the ground or attachment to something having a permanent location of the ground, including, but without limiting the generality of the foregoing, advertising signs, billboards, back stops for tennis courts, and arbors of breeze ways, but excepting utility poles, fences, retaining walls, and ornamental light fixtures.

Structural Alterations. Any change in the supporting members of a building, such as bearing walls or partitions, columns, beams, or girder, or any complete rebuilding of the roof or exterior walls.

Utility. Any person, firm, corporation, municipal department or board duly authorized to furnish and furnishing under public regulations, to the public: Electricity, gas, heat, power, steam, telephone, telegraph, transportation, or water.

Variance. The relaxation of the terms of the Zoning Regulations in relation to height, area, size, and open spaces where specific physical conditions, unique to the site, would create an unreasonable hardship in the development of the site for permitted uses.

Yard. An open space on the same lot with a building, unoccupied and obstructed by any portion of a structure from the ground upward. In measuring a yard for the purpose of determining the width of a side yard, the depth of a front yard, or the depth of a rear yard, the minimum horizontal distance between the lot line and the main building shall be used.

Front. A yard that extends across the full width of the lot. The depth is measured as the least distance between the front lot line and the front building line.

Rear. A yard that extends across the full width of the lot. The depth is measured as the least distance between the rear lot line and the rear building line.

Side. A yard extending from the front to the rear yard. The depth is measured from the side lot line and side building line.

Zoning Map. The map or maps which are a part of the zoning regulation and delineate the boundaries of the zoning districts.